HSLU Lucerne University of Applied Sciences and Arts

IFZ FinTech Study 2025

An Overview of Swiss and Liechtenstein FinTech

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Preface

The Swiss and Liechtenstein FinTech industry continues to be a driving force in transforming financial services. In recent years, the sector has witnessed significant integration of advanced technologies such as artificial intelligence, distributed ledger technology, and sustainable finance solutions. These advancements are increasingly shaping financial products and services, enhancing customer experiences, streamlining operations, and fostering innovation across the industry. The IFZ FinTech Study 2025 builds upon insights and trends observed over the past years, with a particular focus on the rapid advancements influencing the financial industry within Switzerland, Liechtenstein, and globally, while also aiming to identify new developments and emerging trends.

By the end of 2024, the FinTech ecosystem in Switzerland and Liechtenstein comprised over 511 companies, marking only a slight year-over-year increase of one percent. Notably, Switzerland's FinTech landscape showed signs of stagnation, while Liechtenstein recorded a growth in company numbers. These trends may indicate market saturation in Switzerland in a sector renowned for being a catalyst for innovation and a facilitator of convenience for traditional financial institutions (Ernst & Young, 2024). Compounding this development, financing activities in the sector have declined significantly, totalling approximately CHF 300 million, a level that represents only half the funding seen during the record year of 2022. This decline further indicates a saturation of the sector, also from an investor perspective.

These developments highlight the evolving yet challenging landscape of the FinTech sector in Switzerland and Liechtenstein, underscoring the importance of a nuanced understanding of market dynamics, regulatory shifts, and technological progress. To navigate these complexities, the IFZ FinTech Study 2025 is designed to offer both a comprehensive overview of the current ecosystem and a forward-looking exploration of the factors shaping its future.

The study opens with a framework for defining and evaluating FinTech in Switzerland and Liechtenstein (Chapter 1), setting the foundation for a consistent understanding of the sector's scope. An empirical analysis of Swiss and Liechtenstein FinTech companies (Chapter 2) follows, providing insights into general industry trends, company structures, and business models. The study then explores the sector's global context from an investment perspective (Chapter 3), highlighting valuation trends. The subsequent chapter examines Switzerland's competitive position as a FinTech hub, benchmarking its strengths relative to other leading global centres (Chapter 4). Recognising the importance of regulatory clarity, an in-depth analysis of the political and legal environment follows (Chapter 5), providing insights into evolving frameworks that shape operational compliance. This year's edition furthermore introduces several new and timely topics. The potential of AI language models to significantly impact financial services is explored in Chapter 6, with a focus on applications ranging from personalised financial advice to automated investment analysis. The crypto asset market in Switzerland remains a dynamic area of interest, and the study delves into its latest developments, including trading activities and investment trends (Chapter 7). The study concludes with a deep dive into payment trends relevant to the Swiss market (Chapter 8), followed by a comprehensive concluding chapter summarising key takeaways and future outlooks (Chapter 9).

The IFZ FinTech Study 2025 aims to serve as a strategic foundation for stakeholders across the Swiss and Liechtenstein financial sectors. By offering a holistic view of the key trends and innovations driving FinTech, it provides both a reflection on the dynamic developments of the past year and a forward-looking perspective on the opportunities and challenges that lie ahead. Policymakers, industry professionals, entrepreneurs, investors, and academics may find relevant insights that could support decision-making and help shape future initiatives.

We extend our sincere gratitude to our research partners e.foresight, Finnova, Inventx, Canton of Zug, SFTI / Swiss Fintech Innovations, SIX, Swiss Bankers Prepaid Services, and Zürcher Kantonalbank, whose insights and support have been invaluable. We also thank our guest authors for their valuable contributions.

1. Definition and Framework of the FinTech Ecosystem

The FinTech ecosystem represents a dynamic intersection of finance and technology, driving innovation in financial services through new products, services, and business models. Technological advancements have continuously reshaped the financial industry, enabling, for example, greater efficiency, accessibility, and security. This chapter provides a structured foundation for the study, offering a definition of the term "FinTech" (Section 1.1) and introducing the analytical framework used to categorise and assess the industry (Section 1.2).

1.1. Definition of FinTech

The term "FinTech" has been widely used in academic literature, policy discussions, and industry reports, with varying definitions reflecting different perspectives on its scope and impact. Schueffel (2016) defines FinTech as "a new financial industry that applies technology to improve financial activities", highlighting its broad influence on financial services. Arner, Barberis, and Buckley (2015) take a historical approach, describing FinTech as an evolutionary process, distinguishing three phases: FinTech 1.0 (1866–1967), FinTech 2.0 (1967–2008), and FinTech 3.0 (2008–present), emphasising the role of technological advancements in reshaping finance. The Financial Stability Board (2019) emphasises the disruptive nature of FinTech and the need for a material impact, defining it as "technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services". A further example definition is provided in Kou and Lu (2025), stating that "FinTech focuses on providing financial products and services, focusing on the best user and service experiences", thereby underscoring the importance of customer satisfaction.

While these definitions highlight different aspects of FinTech, ranging from technological innovation to customer experience, there is a common understanding that FinTech revolves around leveraging technology to enhance financial services.

For this study, we define the term "FinTech" as follows:

FinTech is defined as technology-based solutions for innovative products, services, and processes in the financial industry, improving, complementing, and / or disrupting existing offerings. Hence, FinTech companies are firms whose main activities, core competencies, and / or strategic focus lie in developing those solutions.

Thus, FinTech encompasses technology-driven innovations that introduce new products, services, and processes in the financial industry, aiming to enhance, complement, or disrupt traditional offerings. Our definition aligns with the broader themes of technological advancement and industry transformation while providing a structured perspective that recognises FinTech's dual role in both improving existing financial services and creating new ones. By encompassing innovation, enhancement, and disruption without explicitly prioritising any single element, this definition provides a comprehensive and balanced perspective that does not confine FinTech to a specific dimension, such as historical evolution, material impact, or customer experience.

1.2. Framework for Analysis

The study makes use of two main frameworks to structure the FinTech industry and business models applied. The so-called "FinTech grid" constitutes the fundamental analytical tool for categorising and understanding the various segments and subsegments within the FinTech ecosystem. It organises FinTech companies and innovations across two primary dimensions, i.e., the "product area" and the "technology category". The grid's matrix structure helps identify emerging trends and highlight where technological advancements intersect with specific areas of financial services.

A visualisation of the FinTech grid is provided in Figure 1.1. The horizontal axis categorises financial services into four main product areas, enabling the classification of FinTech companies' products and services. These four product areas are:

- **Payment**: Solutions focused on enabling secure, efficient, and rapid fund transfers. These innovations address, for example, digital transactions, cross-border payments, mobile wallets, and contactless payment methods.
- **Deposit & Lending**: Encompasses products and services related to savings and lending activities. Solutions in this area include peer-to-peer lending platforms and credit rating systems.
- **Investment Management**: Solutions for managing investments, portfolios, and wealth advisory services. These include robo-advisors, investment insights, and algorithmic trading, aimed at optimising financial planning and portfolio performance.
- **Banking Infrastructure**: Technologies that support the underlying systems, platforms, and APIs enabling financial services. This includes core banking systems, cybersecurity solutions, and compliance technologies, contributing to the modernisation and stability of financial services.

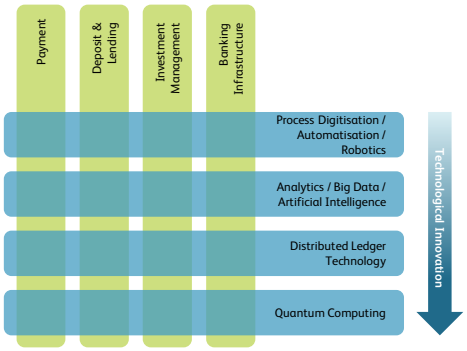

Figure 1.1: FinTech grid

The vertical axis of Figure 1.1 defines the technological categories that form the foundation of FinTech companies' products and services. This dimension classifies FinTech companies according to the core technologies they leverage in their solutions. The technological categories include:

- **Process Digitisation / Automatisation / Robotics**: Refers to technologies that enhance operational efficiency through the digitisation and automatisation of business processes. This includes digitalisation to reduce manual input, robotics for streamlined operations, and automatisation to improve workflows within financial services.
- **Analytics / Big Data / Artificial Intelligence**: Involves the use of (large) datasets and (advanced) analytical methods, including artificial intelligence, to derive insights, predict trends, and optimise decision-making.
- **Distributed Ledger Technology**: Refers to decentralised databases, such as blockchain, that provide secure, transparent, and immutable records.
- **Quantum Computing**: An emerging technology capable of solving certain complex calculations at speeds beyond classical computing by making use of quantum mechanics.

Beyond structuring the sector using the FinTech grid, the business models of individual companies are analysed through selected aspects of the Business Model Canvas by Osterwalder and Pigneur (2010). Particular emphasis is placed on examining the key partners and target customers of Swiss and Liechtenstein FinTech companies, as well as evaluating their revenue models. While the FinTech grid and the Business Model Canvas serve as the primary analytical frameworks for this study, additional methodological approaches are employed in subsequent chapters. These approaches are introduced and discussed within their respective sections.

2. Swiss and Liechtenstein FinTech Companies

This chapter presents an empirical analysis of the Swiss and Liechtenstein FinTech sector.[1] The analysis includes companies that meet the definition of FinTech as outlined in Chapter 1 and is based on a proprietary database compiled through extensive and ongoing research. This database incorporates data from public sources such as newsletters, third-party studies, commercial registries, and company websites, along with insights from previous editions of this study and the "Swiss and Liechtenstein FinTech Map"[2] by e.foresight. A comprehensive list of the companies considered in the following sections can be found in Appendix A.

The chapter begins with a general overview of the state and evolution of the Swiss and Liechtenstein FinTech sector (Section 2.1). It then delves into two key areas: sustainable FinTech (Section 2.2) and the sector's interconnectedness with other technology-driven domains (Section 2.3). The chapter concludes with an analysis of funding activities within both the global and the Swiss and Liechtenstein FinTech ecosystems (Section 2.4).

2.1. Overview of Swiss and Liechtenstein FinTech Companies

This section provides key insights into the Swiss and Liechtenstein FinTech sector. Section 2.1.1 offers a general overview of the sector, while Section 2.1.2 and Section 2.1.3 analyse target customers and revenue models, respectively. Section 2.1.4 highlights the key partners within the Swiss and Liechtenstein FinTech ecosystem. Lastly, Section 2.1.5 explores gender diversity among management and board members.

2.1.1 General Overview of the Sector

Figure 2.1 presents the total number of FinTech companies in Switzerland and Liechtenstein from 2015 to 2024, with Liechtenstein only being included in the study from 2023 onwards.

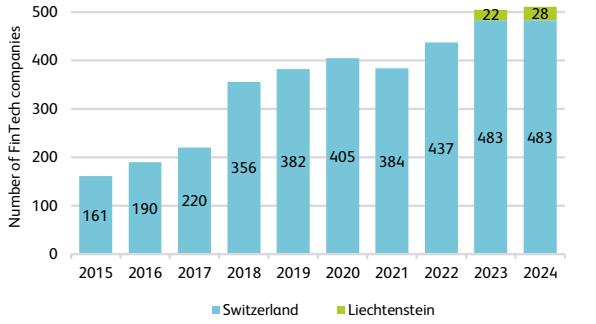

Figure 2.1: Number of Swiss and Liechtenstein FinTech companies by year

The total number of FinTech companies in Switzerland and Liechtenstein grew from 161 in 2015 to 511 in 2024. The most rapid growth occurred between 2017 and 2018, when the total increased from 220 to 356 companies. After smaller fluctuations between 2019 and 2022, the total grew again in 2023, partially driven by the inclusion of Liechtenstein's companies, reaching 505, and continued to rise to 511 in 2024. Hence, the total number of companies in the Swiss and Liechtenstein FinTech sector grew by one percent in 2024, marking a significantly slower growth rate compared to most previous years, for which, however, only figures for Switzerland are available.

Yet, while the overall numbers indicate a modest increase in 2024, they mask divergent national trajectories, with Switzerland and Liechtenstein experiencing notably different developments. In Switzerland, the number of FinTech companies stagnated at 483 in 2024. Meanwhile, Liechtenstein experienced growth, with the number of FinTech companies rising from 22 in 2023 to 28 in 2024. This increase may not only reflect an expanding ecosystem but also a catch-up effect, as the country was only included in the study last year. Consequently, improved knowledge of the sector likely led to the identification of additional companies, contributing to the higher count.

[1] In certain statements and analyses that follow, Liechtenstein is referenced alongside Swiss cantons, or the two countries are considered collectively. This approach improves the robustness and comparability of the analysis, while acknowledging that Switzerland and Liechtenstein are distinct markets.

[2] An interactive overview of the Swiss and Liechtenstein FinTech sector is available at https://fintechmap.ch/.

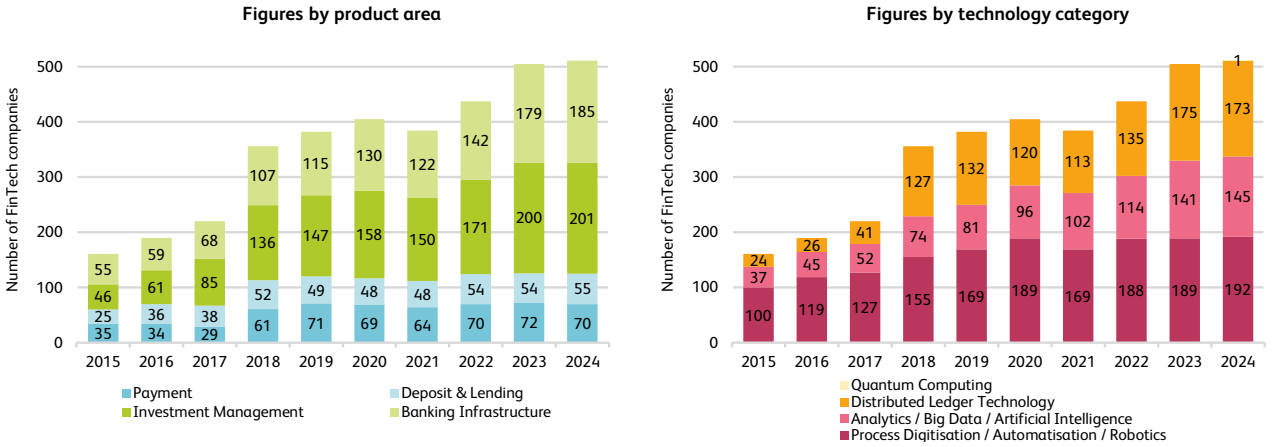

Figure 2.2: Number of FinTech companies by year, and by product area (left-hand graph) and technology category (right-hand graph)

Comparing the number of FinTech companies in Switzerland and Liechtenstein highlights differences in the relative significance within their financial and insurance services sectors. In Switzerland, FinTech companies account for 5.6 percent of all businesses in the sector, whereas in Liechtenstein, the share is notably higher at 8.6 percent.[3] This suggests that FinTech holds a proportionally greater role in Liechtenstein's financial ecosystem. By contrast, Switzerland's larger financial and insurance services industry reduces the relative share of FinTech companies, despite their significantly higher absolute number.

Figure 2.2 presents a breakdown of the 511 FinTech companies in Switzerland and Liechtenstein by the end of 2024 by product area (left-hand graph) and technology category (right-hand graph).

The left-hand graph reveals significant long-term growth, particularly in the *Investment Management* and *Banking Infrastructure* product areas. The number of *Investment Management* companies grew from 46 in 2015 to 201 in 2024, while *Banking Infrastructure* companies increased from 55 to 185 during the same period. These areas have driven much of the sector's expansion over the last decade. In contrast, the *Payment* and *Deposit & Lending* areas experienced more modest growth, increasing from 35 and 25 companies in 2015 to 70 and 55 companies in 2024, respectively. Recent developments from 2022 to 2024 indicate stronger momentum in the *Investment Management* and *Banking Infrastructure* areas, while the *Payment* and *Deposit & Lending* areas have shown more stagnation with relatively consistent numbers over the same period.

The breakdown by technology category in the right-hand graph of Figure 2.2 highlights both long-term and recent trends in Switzerland and Liechtenstein's FinTech sector. Over the last decade, the technology category *Process Digitisation / Automatisation / Robotics* maintained the largest share, growing relatively steadily from 100 companies in 2015 to 192 in 2024. Similarly, the *Analytics / Big Data / Artificial Intelligence* category expanded gradually, rising from 37 to 145 companies, with particularly strong growth since 2020. *Distributed Ledger Technology* experienced rapid early growth, surging from 41 companies in 2017 to 127 in 2018. After some fluctuation, the number reached 175 in 2023 before declining slightly to 173 in 2024. A notable recent development is the emergence of the first FinTech company in the *Quantum Computing* category in 2024.

The connections between the product areas and the technology categories can be visualised using the FinTech grid

[3] The data for the number of companies in the Swiss and Liechtenstein industries for financial and insurance services refers to the year 2022 and was retrieved from Federal Statistical Office (online) and Office of Statistics Liechtenstein (online), respectively.

introduced in Chapter 1. Figure 2.3 shows the corresponding classification of all 511 companies in the Swiss and Liechtenstein FinTech sector. Such an evaluation presents which product areas of FinTech are processed using which technologies and can point out potential clusters and gaps.

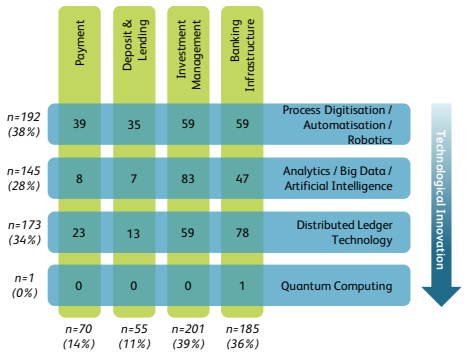

Figure 2.3: Distribution of Swiss and Liechtenstein FinTech companies according to the FinTech grid (n=511)

The data highlights significant clusters at the intersections of product areas and technology categories. The largest concentrations are in the *Banking Infrastructure* and *Investment Management* product areas. Specifically, the application of *Analytics / Big Data / Artificial Intelligence* in *Investment Management* is the most prominent, with 83 companies, followed closely by *Distributed Ledger Technology* in *Banking Infrastructure*, which has 78 companies. Technologies from the *Process Digitisation / Automatisation / Robotics* category are also prominent, with 59 companies each in *Banking Infrastructure* and *Investment Management*, matched by *Distributed Ledger Technology* in *Investment Management* with the same number of companies. These intersections demonstrate the areas where technological activity is particularly concentrated.

In contrast, the smallest clusters highlight potential gaps where FinTech business models could be further developed. The technology category *Quantum Computing* is applied only once, reflecting the still immature state of the technology. Similarly, *Analytics / Big Data / Artificial Intelligence* shows limited activity in the *Deposit & Lending* and *Payment* areas, with only seven and eight companies, respectively, in each intersection.

The increase in the total number of FinTech companies in Switzerland and Liechtenstein from 505 at the end of 2023 to 511 at the end of 2024 can be explained by multiple factors, as illustrated in Figure 2.4.

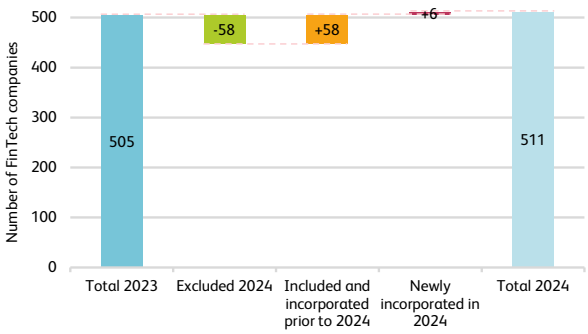

Figure 2.4: Year-over-year change in the total number of Swiss and Liechtenstein FinTech companies

In 2024, six newly founded companies entered the FinTech sector, contributing to the net increase. Additionally, 58 companies incorporated prior to 2024 were newly included in the sector due to either transitioning to a FinTech business model or becoming publicly active only in the past year. However, 58 companies were removed from the sector classification in 2024. These exclusions were driven by reasons such as mergers, acquisitions, liquidation processes, a shift away from FinTech business activities, or clear signs of company inactivity (e.g., unreachable website).

A detailed analysis of deletions and liquidations of Swiss and Liechtenstein FinTech companies is presented in Figure 2.5. The data on the total number of FinTech companies either deleted or in liquidation by year shows varying trends, with a significant increase in recent years. This consolidation trend in 2024 could possibly continue in 2025, partly due to a change in the Federal Act on Debt Enforcement and Bankruptcy, which came into force on 1 January 2024 (Creditreform, 2025).

A geographical breakdown of all FinTech companies that have ever been included in the study series and were either deleted or in the process of liquidation as of 31 December 2024, is provided in Figure 2.6. Note that the figure only

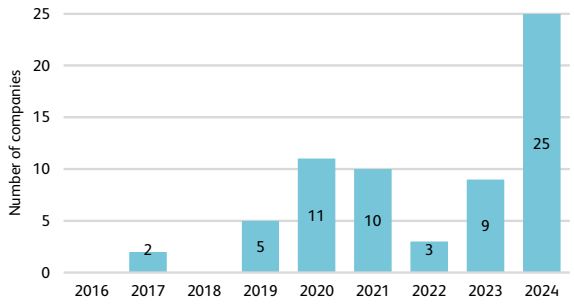

Figure 2.5: Number of FinTech companies removed from the commercial registry or undergoing liquidation (source: Moneyhouse (online))

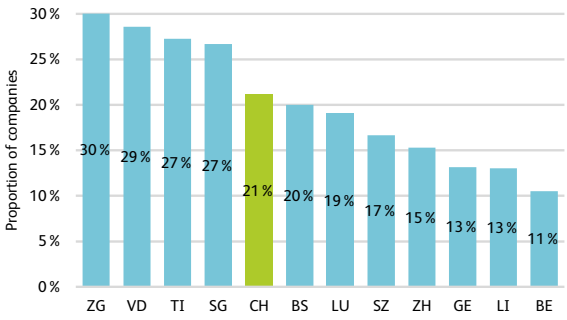

Figure 2.6: Number of FinTech companies removed from the commercial registry or undergoing liquidation by canton (source: Moneyhouse (online))

considers cantons that accounted for a total of at least ten FinTech companies since 2015.

The data highlights significant variation across cantons in the proportion of affected companies. Zug (ZG) and Vaud (VD) have the highest rates, with 30 percent and 29 percent of their total FinTech companies either deleted or in liquidation by the end of 2024. Ticino (TI) and St. Gallen (SG) follow closely at 27 percent. On a national level, 21 percent of FinTech companies across Switzerland (CH) were impacted, while Basel-Stadt (BS) recorded 20 percent, Lucerne (LU) 19 percent, Schwyz (SZ) 17 percent, and Zurich (ZH) 15 percent. Lower proportions were observed in Geneva (GE) and Liechtenstein (LI), both at 13 percent, and Bern (BE) at eleven percent.

Despite the liquidation and deletion of FinTech companies from the commercial registry, six new incorporations were recorded in Switzerland and Liechtenstein in 2024. An overview of the 511 Swiss and Liechtenstein FinTech companies active as of 2024, categorised by foundation year, is presented in Figure 2.7.

The data on FinTech company incorporations in Switzerland and Liechtenstein reveals a general trend of growth, followed by a recent decline in founding activity. Starting around 2015, the number of incorporations rose sharply, peaking between 2017 and 2021. This surge was particularly driven by the *Investment Management* and *Banking Infrastructure* product areas, as illustrated in the left-hand graph of Figure 2.7. Recent trends highlight notable decreases in activity within individual product areas. In the *Payment* area, incorporations remained relatively stable from 2016 to 2023 but fell to just two in 2024. The *Deposit & Lending* area, which experienced a temporary surge between 2015 and 2019, driven by the rise of crowdfunding solutions, registered no new incorporations in 2024. Similarly, the *Investment Management* area, after peaking with 30 incorporations in 2018 and maintaining high levels through 2021, saw a sharp drop to two in 2024. The *Banking Infrastructure* area, which had reached 26 and 27 incorporations in 2018 and 2021, respectively, also declined to two in 2024. These patterns suggest a notable cooling-off in FinTech start-up activity across all product areas after a period of rapid expansion.

The development of incorporations by technology category is shown in the right-hand graph of Figure 2.7. Early incorporations before 2000 were primarily focused on the *Process Digitisation / Automatisation / Robotics* category, which reflects the fact that other technologies were still in their infancy at that time. Between 2000 and 2010, moderate but steady growth occurred in both the *Process Digitisation / Automatisation / Robotics* and *Analytics / Big Data / Artificial Intelligence* categories, while *Distributed Ledger Technology* and *Quantum Computing* saw little to no activity. From 2011 to 2021, incorporations surged, driven in large part by the *Distributed Ledger Technology* category, coinciding with the emergence of the so-called “Crypto Valley” in and around the canton of Zug. Other technology categories, except for *Quantum Com-*

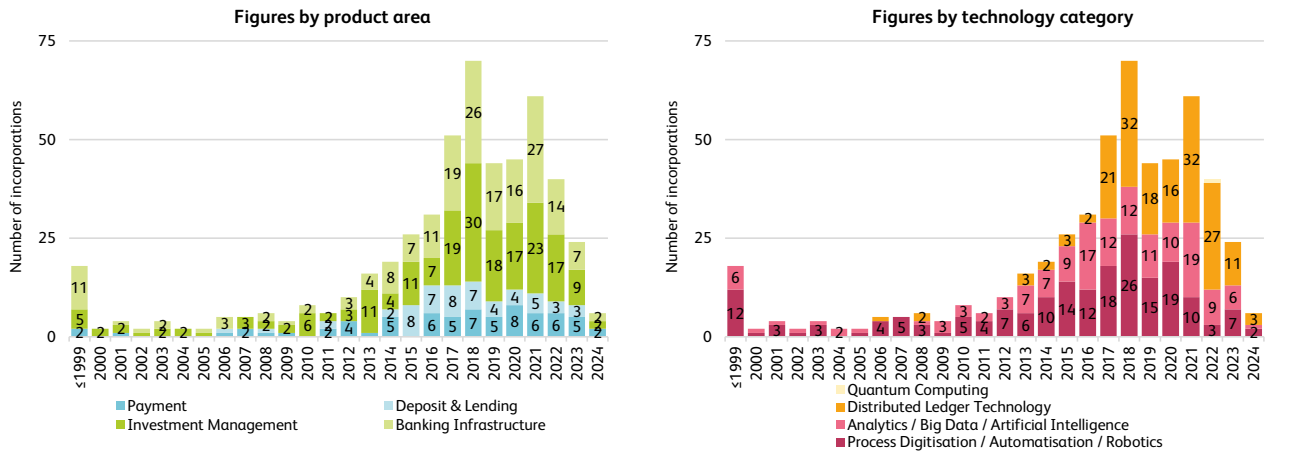

Figure 2.7: Number of FinTech company incorporations per year by product area (left-hand graph) and technology category (right-hand graph) (n=511)

puting, also experienced consistent growth during this period. The application of *Quantum Computing* technology remained almost absent to date, with only one company founded in 2022. Recent trends show a marked decline across all technology categories. By 2024, incorporations in the *Process Digitisation / Automatisation / Robotics* category had fallen to just two, while the *Distributed Ledger Technology* category saw three new companies. The *Analytics / Big Data / Artificial Intelligence* category, after peaking in 2021, recorded just one new incorporation in 2024.

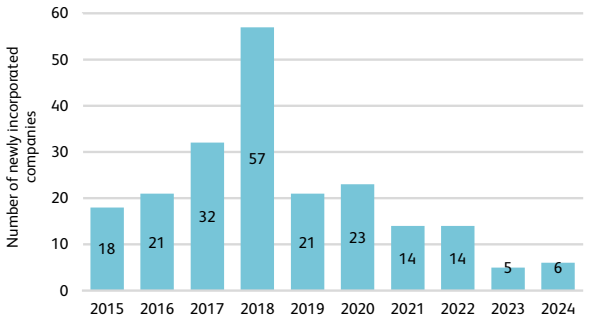

Figure 2.8: Number of FinTech companies founded in the most recent year by study year

However, the latest figures on company start-ups should be interpreted with caution. Many newly founded companies remain under the radar in their early months or even years, operating in stealth mode as they develop their solutions. As a result, foundation numbers for the most recent years often see a delayed increase as these companies gradually become publicly visible. A similar trend is likely for 2024, with the current figures expected to rise over time. Figure 2.8 attempts to account for this effect by illustrating the number of FinTech companies newly founded in the most recent year, as reported in each edition of the IFZ FinTech Study series. This approach enables a more accurate evaluation of the six new incorporations reported for 2024, allowing for meaningful interpretations regarding the current dynamics of company formation in the Swiss and Liechtenstein FinTech sector.

The figure reveals that the number of newly incorporated FinTech companies in the most recent year of each study edition has declined significantly over time. In earlier years, particularly between 2015 and 2020, the numbers remained relatively high, peaking in 2018 (corresponding to the last year in the IFZ FinTech Study 2019 edition) with 57 incorporations, driven by the rapid growth of the "Crypto Valley". However, beginning in 2021, the number of newly founded FinTech companies reported for the respective most recent year dropped significantly, with 14 incorporations recorded in both the years 2021 and 2022.

In more recent years, the downward trend has continued, with only five incorporations reported for the year 2023 and six in 2024. This indicates a slowdown in new incorporations over the past two years, after accounting for potential delays caused by stealth mode activity. The figure points to a cooling of start-up activity in the Swiss and Liechtenstein FinTech sector, potentially reflecting a shift in market dynamics or maturation of the industry.

Figure 2.9 presents the number of FinTech companies by region, again distinguishing between the product area (left-hand graph) and technology category perspectives (right-hand graph).

The figure reveals that Zurich (ZH) and Zug (ZG) remain the leading regions in the FinTech sector, with 187 and 125 companies by the end of 2024, respectively. However, both regions experienced a year-over-year decline of three and four companies, respectively, suggesting a potential slowdown in growth or ongoing consolidations. Geneva (GE) ranks third with 49 companies and recorded an increase of two, while Basel-Stadt (BS) and Lucerne (LU) showed notable growth with year-over-year gains of four and three companies, respectively. In contrast, smaller regions such as St. Gallen (SG) and Schwyz (SZ) saw declines, losing two companies and one company, respectively. Regions like Vaud (VD), Ticino (TI), and Aargau (AG) remained stable, showing no changes in their company counts. Liechtenstein (FL), with 28 companies, recorded a significant increase of six companies. However, this surge may reflect a catch-up effect in company identification, since Liechtenstein has only been included in the analysis for a short time. Meanwhile, many rural regions, including Glarus (GL), Nidwalden (NW), Solothurn (SO), and Uri (UR), continue to show no FinTech activity or changes, emphasising the sector's concentration in key urban and financial centres.

Figure 2.9 reveals distinct clusters primarily in technology categories (right-hand graph), while clustering based on product areas (left-hand graph) is less evident. Zug (ZG) stands out as a significant hub in the *Distributed Ledger Technology* category with 82 companies, reflecting its specialised DLT ecosystem. Zurich (ZH), in contrast, is a centre for *Process Digitisation / Automatisation / Robotics* (98 companies) and *Analytics / Big Data / Artificial Intelligence* (62 companies), highlighting its broad and more mature technological expertise in financial services. Geneva (GE) also demonstrates relative clustering in these two technology categories. In contrast, Liechtenstein (FL) shows a strong concentration of companies in the *Distributed Ledger Technology* category (20 companies), emphasising its significant role in blockchain-based financial innovation. In terms of product areas (left-hand graph), no region exhibits a strong, focused specialisation comparable to the technological clusters. Zurich (ZH) and Zug (ZG) lead in the *Investment Management* and

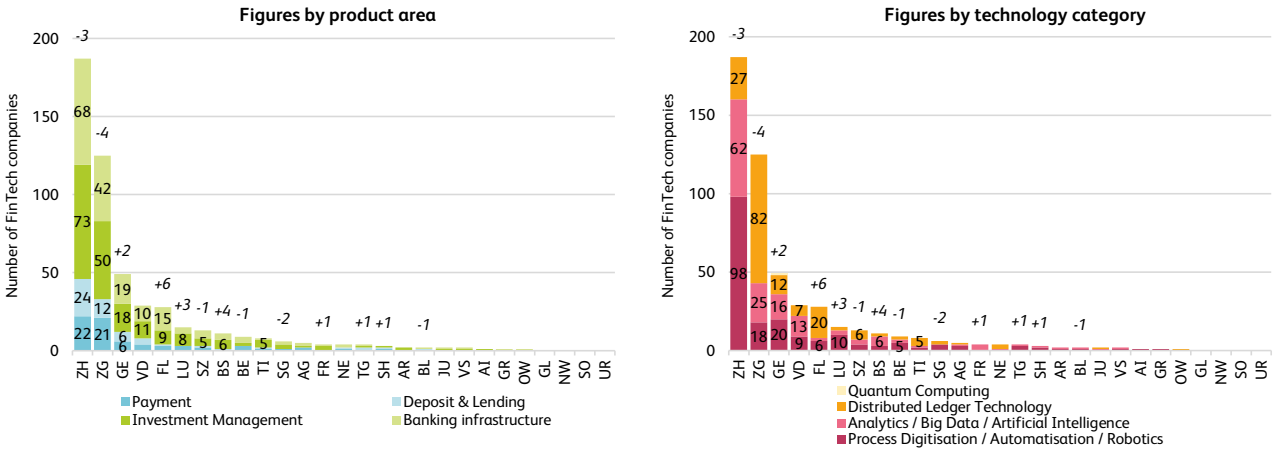

Figure 2.9: Number of FinTech companies by region, and by product area (left-hand graph) and technology category (right-hand graph) (n=511)

Banking Infrastructure areas, but these are also relatively distributed across multiple regions without a dominant concentration. This indicates that product area activity is more balanced geographically, unlike the more pronounced technological specialisations observed in certain cantons.

An evaluation of the growth rates in the number of FinTech companies by selected regions is presented in Figure 2.10. The figure compares the growth rates of the three largest FinTech hubs against the Swiss average and the remaining cantons.[4]

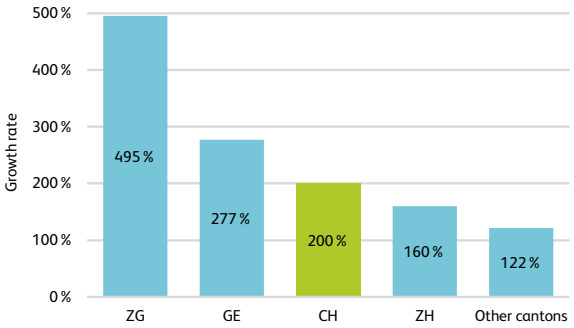

Figure 2.10: Growth in the number of FinTech companies by region from 2015 to 2024

The figure reveals substantial regional differences in growth rates of FinTech companies between 2015 and 2024. Zug (ZG) experienced the highest growth, with an increase of 495 percent, significantly exceeding the national average (CH) of 200 percent, which represents a threefold increase in the past ten years. This exceptional growth underscores Zug's increasing role as a global centre for companies in the crypto assets and blockchain ecosystem. Geneva (GE) follows with a growth rate of 277 percent, indicating its rising importance as a hub for technology-driven innovation in financial services. In contrast, Zurich (ZH), despite being the largest FinTech centre by total company count, recorded a comparatively lower growth rate of 160 percent. This may reflect a more mature market, where growth has slowed as the ecosystem stabilises and consolidates. The remaining cantons saw an average growth rate of 122 percent, suggesting that FinTech activity outside the major hubs is expanding, though at a slower pace.

[4] Liechtenstein is excluded from this analysis due to the absence of data on the number of FinTech companies in 2015.

2.1.2 Target Customers

Understanding the target customers of FinTech companies is crucial for evaluating their market strategies, business models, and growth prospects. Customer segmentation highlights the primary drivers of demand by distinguishing between customer types, i.e., private individuals and businesses, and geographical orientation, whether focused on the home market or an international scope (including national home market). This subsection analyses the distribution of these customer segments within the Swiss and Liechtenstein FinTech sector.

Figure 2.11 provides a detailed breakdown of customer segments by type and geographical orientation as per the end of the year 2024.[5]

	B2B	B2B & B2C	B2C	*Total*
National	36 (7 %)	45 (9 %)	16 (3 %)	***97 (19%)***
International	259 (51 %)	139 (27 %)	16 (3 %)	***414 (81%)***
Total	***295 (58%)***	***184 (36%)***	***32 (6%)***	***511 (100%)***

Figure 2.11: Proportion of FinTech companies by customer segments (n=511)

Business-to-business (B2B) companies account for the largest share, representing 295 companies, or 58 percent of the total. Companies serving both business and consumer customers (B2B & B2C) follow with 184 companies, comprising 36 percent of the total, while business-to-consumer (B2C) companies remain a minority, with only 32 companies or six percent of the total.

In terms of geographical orientation, the majority of companies, i.e., 414 companies or 81 percent, are internation-

[5] Note that discrepancies in figures may occur due to rounding.

ally focused, demonstrating the sector's significant emphasis on expanding beyond domestic markets. Among these, B2B companies dominate with 259 (51 % of the total), followed by B2B & B2C companies with 139 (27 %) and pure B2C companies with 16 (3 %). In contrast, only 97 companies, representing 19 percent of the total, are nationally focused. Within this group, B2B & B2C companies make up the largest share with 45 (9 %), followed by B2B with 36 (7 %) and B2C with 16 (3 %). These figures highlight a sector predominantly geared towards international markets and business clients, with relatively limited attention to domestic or consumer-exclusive services.

Figure 2.12 furthermore shows that the customer focus has changed over the last ten years. The left-hand graph reveals a clear temporal trend towards increased international focus among FinTech companies between 2015 and 2024. In 2015, 63 percent of Swiss FinTech companies were internationally oriented, while 37 percent focused on the national market. By 2020, the share of internationally oriented companies had risen to 74 percent, accompanied by a decline in the proportion of nationally focused companies to 26 percent. This trend continued through 2024, with 81 percent of companies, now also including Liechtenstein, having an international orientation and only 19 percent focusing on the home market. The steady shift towards international markets suggests a strategic response to opportunities for growth and innovation beyond domestic boundaries.

The right-hand graph of Figure 2.12 highlights a significant shift in customer type focus among FinTech companies between 2015 and 2024. In 2015, companies serving both business and consumer customers (B2B & B2C) held the largest share at 42 percent, followed by B2B-focused companies at 36 percent. B2C companies accounted for 22 percent, indicating a notable presence of consumer-oriented businesses at the time. By 2020, a shift occurred as B2B companies increased their share to 52 percent, becoming the dominant category. Simultaneously, B2C companies experienced a sharp decline, falling to just five percent. Companies serving both customer types (B2B & B2C) remained relatively stable, increasing slightly to 43 percent. This trend continued through 2024, now also considering Liechtenstein, with B2B companies expanding their share further to 58 percent, while B2B & B2C companies decreased to 36 percent. B2C companies saw a marginal increase to six percent but remained a minor segment. These changes suggest a growing prioritisation of business clients over private individuals within the FinTech sector. The decline in B2C companies may reflect the challenges of scaling consumer services in a competitive market, while the sustained growth of B2B businesses indicates increasing demand for business-oriented finan-

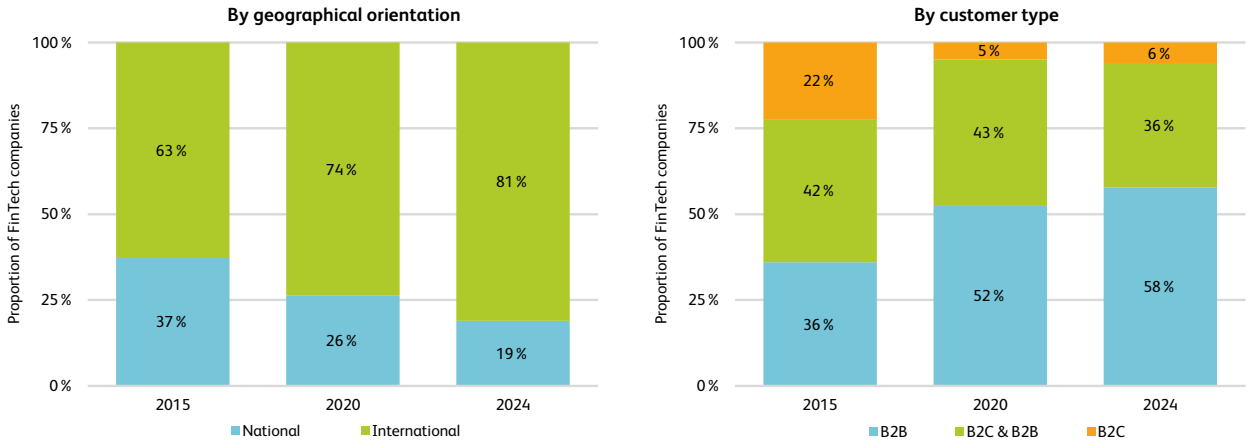

Figure 2.12: Proportion of FinTech companies by geographical orientation (left-hand graph) and customer type (right-hand graph) by year (n_{2024}=511)

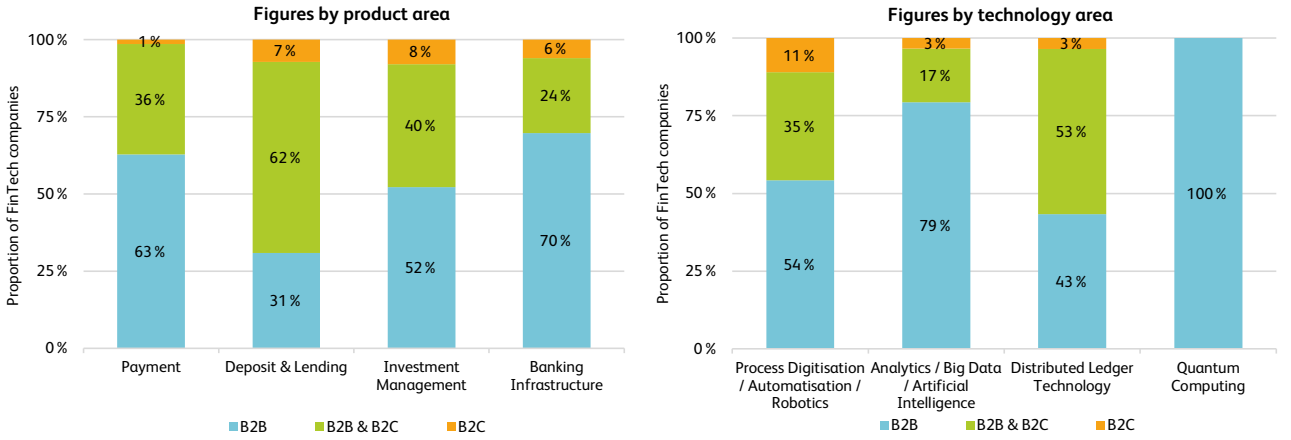

Figure 2.13: Proportion of FinTech companies by customer segments, and by product area (left-hand graph) and technology category (right-hand graph) (n=511)

cial solutions. Companies serving both business and consumer customers appear to be consolidating their focus, with some shifting more towards pure B2B strategies.

Figure 2.13 illustrates that the customer type focus varies significantly across different product areas (left-hand graph) and technology categories (right-hand graph) within the Swiss and Liechtenstein FinTech sector. In the left-hand graph, B2B companies dominate the *Banking Infrastructure* area in 2024, accounting for 70 percent of activity. This highlights their strong role in providing specialised services for financial institutions. They also lead in the *Payment* and *Investment Management* areas, with 63 percent and 52 percent, respectively, indicating a primary emphasis on business-oriented solutions. In contrast, B2B & B2C companies are particularly prominent in *Deposit & Lending*, where they account for 62 percent of activity. This reflects a more balanced approach, catering to both business and consumer needs, often through credit-based products such as crowdfunding. B2C companies, however, have a minimal presence across all product areas, contributing less than eight percent in each segment.

The right-hand graph in Figure 2.13 reveals differences in customer focus across technology categories. B2B companies hold a dominant position in the *Analytics / Big Data / Artificial Intelligence* category, with 79 percent of companies operating in this segment, and in *Quantum Computing*, where they represent 100 percent of activity. The latter needs to be interpreted with caution, since as of the end of 2024, only one FinTech company had adopted quantum computing. Additionally, B2B companies maintain a significant presence in the *Process Digitisation / Automatisation / Robotics* category, with 54 percent of activity. B2B & B2C companies lead in the *Distributed Ledger Technology* category, accounting for 53 percent of activity. This suggests a strong focus on both business and consumer use cases, particularly in publicly accessible blockchain solutions. They also contribute substantially to *Process Digitisation / Automatisation / Robotics*, with a 35 percent share. In contrast, B2C companies have a limited role across all technology categories, with their highest share being eleven percent in *Process Digitisation / Automatisation / Robotics*, and only marginal activity in other areas.

2.1.3 Revenue Models

Understanding the revenue models adopted by FinTech companies provides insights into their business strategies and evolving market trends. Revenue models influence how companies generate value and sustain operations. Figure 2.14 presents the proportion of FinTech companies by revenue model for 2015, 2020, and 2024, highlighting shifts over time.

Traditional banking revenue models, including interest, commission, and trading, show fluctuating trends. The

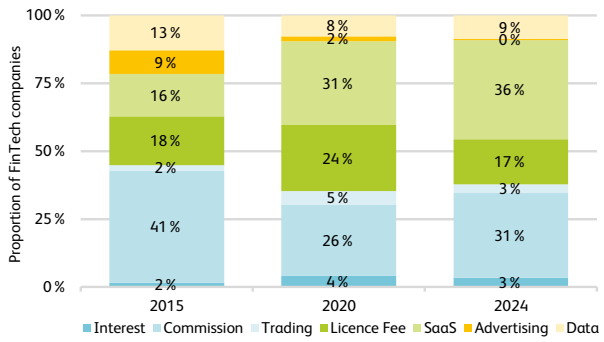

Figure 2.14: Proportion of FinTech companies by revenue model and by year (n_{2024}=511)

use of interest and trading models remains marginal, consistently below five percent across all years. The commission model, however, experienced a marked decline from 41 percent in 2015 to 26 percent in 2020, followed by a partial rebound to 31 percent in 2024. IT-driven revenue models, such as licence fees and software-as-a-service (SaaS), have become increasingly important in total. The proportion of companies using licence fees rose from 18 percent in 2015 to 24 percent in 2020 but declined to 17 percent by 2024. In contrast, the SaaS model has seen steady growth, increasing from 16 percent in 2015 to 31 percent in 2020 and further to 36 percent in 2024. This trend reflects the rising adoption of scalable, subscription-based models in the Swiss and Liechtenstein FinTech sector. Other revenue models, such as advertising and data sales, have shown contrasting trends. Companies generating revenue through advertising declined sharply from nine percent in 2015 to two percent in 2020 and became negligible by 2024, suggesting that advertising has largely lost relevance as a revenue stream for FinTech companies. Conversely, data sales have remained relatively stable, decreasing from 13 percent in 2015 to eight percent in 2020 before slightly recovering to nine percent in 2024. This indicates a sustained interest in monetising (analysed) data as a revenue source.

Figure 2.15 highlights the shifting dynamics of revenue models across product areas (left-hand graph) and technology categories (right-hand graph) between 2020 and 2024.

The shift towards commission and SaaS revenue models is largely driven by changes in key product areas. The *Deposit & Lending* area shows the strongest increase in reliance on commission-based revenue, rising from 52 percent in 2020 to 63 percent in 2024. Similarly, the *Investment Management* area experienced a notable increase in commission revenue, from 26 percent to 34 percent. The rise of SaaS revenue is most evident in the *Payment* area, where its share increased from 29 percent in 2020 to 37 percent in 2024. This trend is further reinforced by growth in the *Investment Management* area (from 30 % to 35 %) and the *Banking Infrastructure* area (from 38 % to 42 %), underscoring the increasing importance of subscription-based models across various financial services. In contrast, licence fee revenue saw the most significant declines in *Deposit & Lending* (from 15 % to 1 %) and *Investment Management* (from 24 % to 12 %), indicating a move away from traditional licensing agreements.

The right-hand graph of Figure 2.15 shows that technological developments have further driven the shift towards commission and SaaS models. The *Distributed Ledger Technology* category saw commission-based revenue rise sharply from 33 percent to 48 percent, becoming the dominant revenue model in this category. SaaS revenue experienced significant growth in *Process Digitisation / Automatisation / Robotics*, increasing from 29 percent to 37 percent, and in *Analytics / Big Data / Artificial Intelligence*, rising from 41 percent to 48 percent. Meanwhile, licence fees have declined across all technology categories, except for *Quantum Computing*, where there was no data available for 2020 due to the absence of companies in that category at the time. This decline reflects the broader transition towards recurring revenue streams and service-based pricing models across the sector.

The average number of different revenue models by founding year of companies in the Swiss and Liechtenstein FinTech sector is shown in Figure 2.16.

It indicates that older companies generally employ a greater variety of revenue models compared to younger ones. Specifically, firms established more than ten years ago utilise an average of 1.9 different revenue models, whereas those founded in 2020 or later adopt an average of 1.5 revenue models. This trend suggests that older FinTech companies have expanded their product and service offerings over time, diversifying their business models to capture additional revenue streams. In contrast, younger

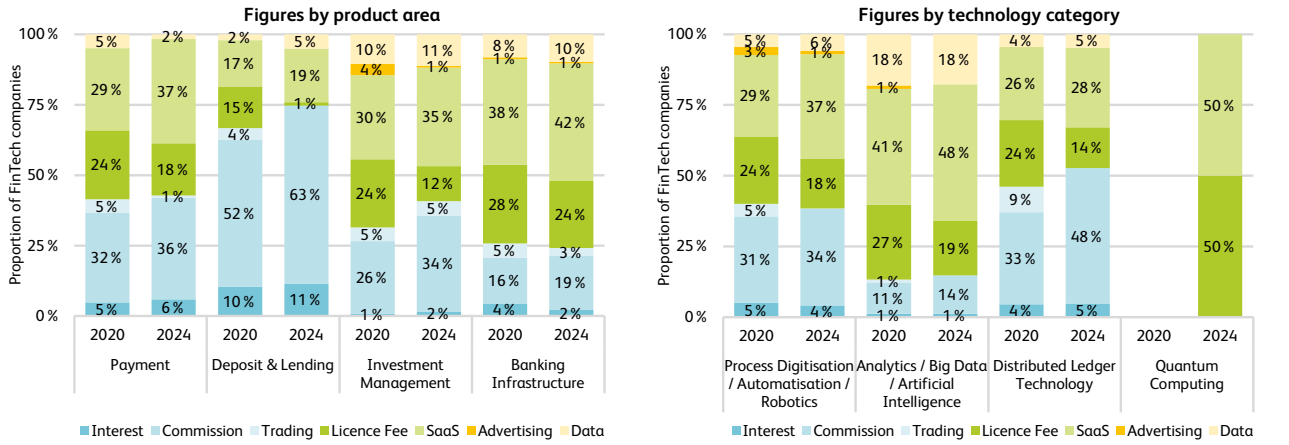

Figure 2.15: Proportion of FinTech companies by revenue model and year, and by product area (left-hand graph) and technology category (right-hand graph) (n_{2024}=511)

companies often begin with a more focused value proposition and a limited set of monetisation strategies. As they mature, they may broaden their product offering, which in turn can lead to the adoption of additional revenue models.

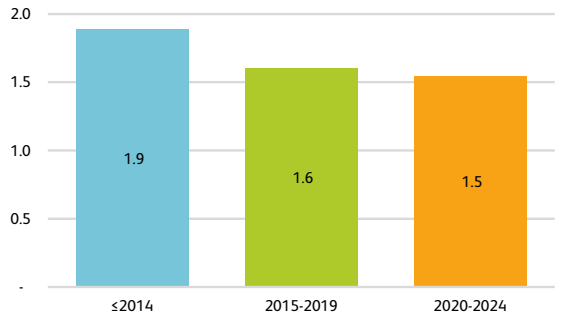

Figure 2.16: Average number of revenue models by year of incorporation (n=511)

2.1.4 Partners

Partnerships are a cornerstone of the FinTech ecosystem, enabling companies to leverage external expertise, infrastructure, and resources. Collaborations with financial institutions, technology providers, associations, and public bodies can, for example, help FinTech companies innovate, scale, and adapt to changing market demands.

The following evaluation reveals key partners mentioned on at least ten websites of Swiss and Liechtenstein FinTech companies, demonstrating the critical role of cross-sector collaboration. The most frequently mentioned partner is SIX, cited 23 times. As a leading financial infrastructure provider, SIX supports FinTech operations by offering essential services such as payment processing, securities trading, and digital asset infrastructure, for example. Swisscom (14 mentions) and Microsoft (13 mentions) rank next, serving as key IT partners. These companies provide critical technology solutions, including cloud infrastructure and cybersecurity, underscoring the importance of robust tech partnerships in enabling secure and scalable services. The Crypto Valley Association, with eleven mentions, plays a significant role in the Swiss and Liechtenstein FinTech ecosystem, particularly for FinTech companies focused on distributed ledger technologies and blockchain innovation. Two banks are also mentioned as key partners prominently, with PostFinance and UBS receiving eleven and ten mentions, respectively. Finally, Innosuisse, a governmental funding body, is also mentioned ten times. Its role underscores the importance of public sector support, particularly through funding programs that foster innovation and facilitate early-stage development.

Overall, the evaluation reveals a well-balanced network of partnerships, with FinTech companies leveraging collaborations across financial infrastructure, technology, banking, and government sectors to drive sustained growth, innovation, and competitiveness.

2.1.5 Gender Diversity

Analysing gender diversity offers valuable insights into the inclusiveness and representativeness of the Swiss and Liechtenstein FinTech sector's workforce. Several studies (see, e.g., Boston Consulting Group (2018) or McKinsey & Company (2020)) indicate that diverse teams are associated with enhanced decision-making and increased innovation factors essential for driving the development of competitive and resilient financial technologies. By examining gender diversity trends, it becomes possible to assess the sector's progress and identify ongoing challenges in creating a more balanced and equitable professional environment.

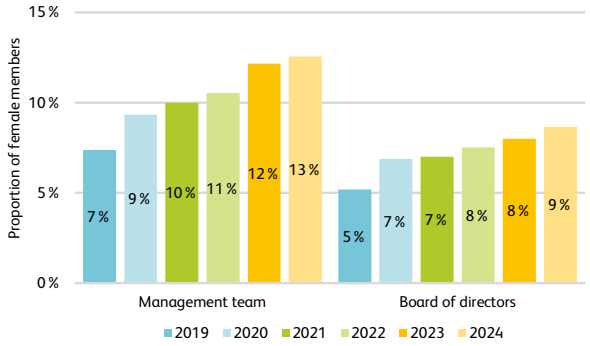

Figure 2.17: Proportion of female members of the management team and board of directors by year (n_{2024}=511)

Figure 2.17 presents the percentage of female representation on management teams and boards of directors in FinTech companies across Switzerland and Liechtenstein since 2019.[6] The data is sourced from company websites and the commercial registry.

[6] Gender classification is based on individuals' first names, providing a simplified representation that does not account for non-binary gender identities.

The figure reveals a gradual but consistent increase in female representation within FinTech company leadership in Switzerland and Liechtenstein from 2019 to 2024. Female participation in management teams rose from seven percent in 2019 to 13 percent in 2024, reflecting modest but steady progress. Similarly, the percentage of women on boards of directors increased from five percent to nine percent over the same period.

Despite these improvements, women remain significantly under-represented in the FinTech sector, with modest growth rates suggesting that further efforts are needed to achieve a more balanced gender composition. This lack of diversity becomes even more apparent when compared to traditional Swiss retail banks, where 30 percent of board members were women as of mid-2024 (Dietrich, Amrein, et al., 2024). However, regarding management teams, the FinTech sector shows similar gender diversity, with 13 percent of management positions held by women, matching the proportion reported in traditional Swiss retail banks (Dietrich, Amrein, et al., 2024). Nonetheless, traditional banks have achieved faster progress in improving gender diversity than FinTech companies in the last few years.

2.2. Sustainable FinTech

The rise of sustainable FinTech reflects the increasing convergence of financial innovation and sustainability principles. As sustainability gains prominence in global finance, FinTech companies are at the forefront of developing technology-driven solutions to facilitate, for example, green investments, ESG data analysis, and impact-driven financial services. This section explores the growth and evolution of sustainable FinTech in Switzerland and Liechtenstein.

Figure 2.18 highlights the development of the number of sustainable FinTech companies in Switzerland and Liechtenstein across different product areas (left-hand graph) and technology categories (right-hand graph).

The total number of sustainable FinTech companies in Switzerland and Liechtenstein has grown significantly between 2022 and 2024, rising from 32 in 2022 to 49 in 2023 and reaching 59 in 2024. This represents an 84 percent increase over two years, underscoring the sector's expansion. The most substantial growth occurred between 2022 and 2023, with the addition of 17 new companies, followed by a slightly slower but still notable increase of

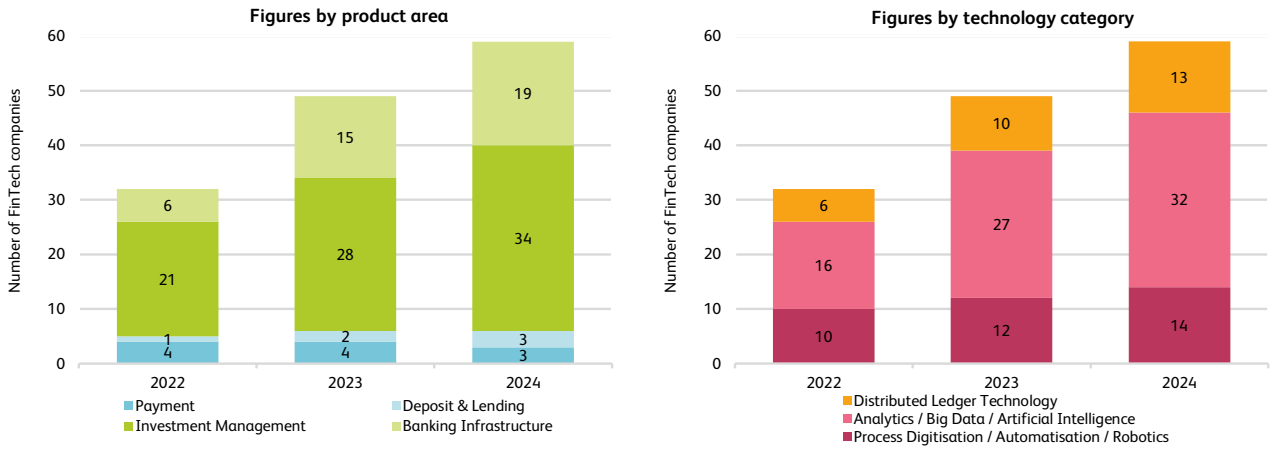

Figure 2.18: Number of sustainable FinTech companies by sustainability focus (n_{2024}=59)

ten more companies in 2024. This trend indicates that sustainable FinTech is expanding at a much faster pace than the broader FinTech sector, which has grown by only 17 percent since 2022. Additionally, the share of sustainable FinTech companies within the overall FinTech sector has increased steadily, rising from seven percent in 2022 to ten percent in 2023 and reaching twelve percent in 2024. This further highlights the positive momentum of sustainability-driven financial solutions.

The left-hand graph of Figure 2.18 reveals that the *Investment Management* and *Banking Infrastructure* product areas have been the primary driver of growth, increasing from 21 and six companies in 2022 to 34 and 19 in 2024, respectively. This growth reflects the increasing demand for ESG-compliant investment solutions and digital financial infrastructure for sustainability-related services like reporting tools.

The breakdown by technology categories in the right-hand graph shows that sustainable FinTech growth in Switzerland and Liechtenstein is primarily driven by advancements in the *Analytics / Big Data / Artificial Intelligence* category, where the number of companies has doubled from 16 in 2022 to 32 in 2024. This trend underscores the increasing reliance on AI-driven solutions for, for example, ESG analysis, risk assessment, and sustainable investment strategies. The absolute growth in company numbers is smaller in other technology categories. *Distributed Ledger Technology* expanded by seven companies since 2022, reaching 13 in 2024, and *Process Digitisation / Automatisation / Robotics* grew by four, totalling 14 companies. Overall, the data suggests that sustainable FinTech companies are more inclined to adopt emerging and innovative technologies compared to the broader FinTech sector, reflecting a stronger focus on modern technological solutions to drive sustainability.

A classification of the sustainable FinTech companies into their sustainability focus by year is illustrated in Figure 2.19.

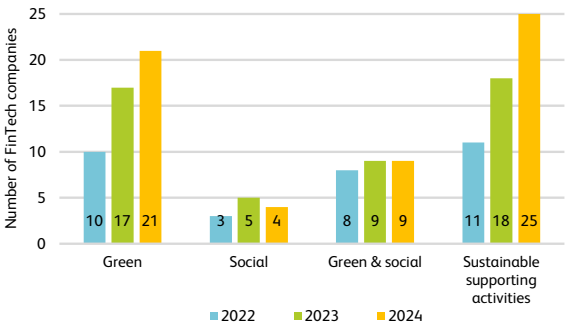

Figure 2.19: Number of sustainable FinTech companies by sustainability focus (n_{2024}=59)

The distribution of FinTech companies by sustainability focus reveals strong growth in green finance and sustainable supporting activities. The *Green* category, which comprises companies dedicated to environmental sustainability, has experienced the most significant growth, increasing from ten in 2022 to 17 in 2023 and reaching 21 in 2024, more than doubling over the past two years. This reflects the growing supply of environmentally conscious financial solutions, such as green investments. The increase in the number of companies providing such services in Switzerland and Liechtenstein aligns with the global growth in climate-focused FinTech companies, which expanded from 398 in 2022 to 750 in 2024, representing a growth rate of 88 percent (Tenity, 2024).

The *Social* category, which includes FinTech companies addressing social issues such as financial inclusion, remains the smallest group. Although it initially grew from three companies in 2022 to five in 2023, the number slightly declined to four in 2024, indicating a more moderate expansion compared to green finance.

The *Green & social* category, which includes companies integrating both environmental and social objectives, has remained relatively stable, with a slight increase from eight in 2022 to nine in 2023 and 2024. This suggests that while the sector values integrated sustainability approaches, most companies tend to specialise in either green or social finance rather than combining both.

The strongest overall growth is seen in *Sustainable supporting activities*, which include companies providing infrastructure, data, or services that enable sustainability-focused financial solutions. This category grew from eleven companies in 2022 to 18 in 2023 and further to 25 in 2024, making it the fastest-expanding segment. This trend suggests an increasing need for sustainability-enabling technologies, such as ESG data analytics, compliance tools, and sustainable financial infrastructure.

Figure 2.20 uses an alternative classification framework, i.e., the "Green FinTech Taxonomy" by the Green Digital Finance Alliance and Swiss Green Fintech Network (2021), to structure the sustainability focus of Swiss and Liechtenstein FinTech companies.

It highlights notable shifts in focus within the sustainable FinTech landscape between 2023 and 2024.[7] The largest

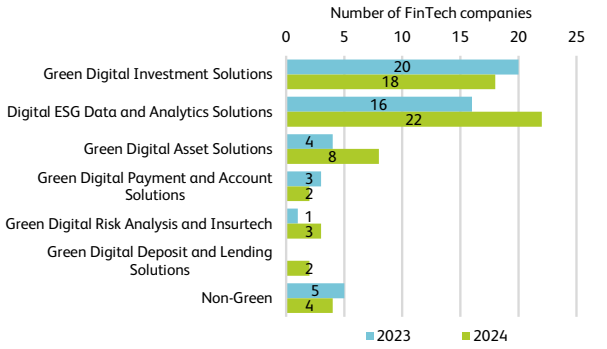

Figure 2.20: Number of sustainable FinTech companies according to the taxonomy of Green Digital Finance Alliance and Swiss Green Fintech Network (2021) (n_{2024}=59)

category in 2024 is *Digital ESG Data and Analytics Solutions*, which expanded from 16 companies in 2023 to 22 in 2024, surpassing *Green Digital Investment Solutions*, which had 18 companies by the end of 2024. This growth underscores the increasing importance of data-driven ESG insights, regulatory reporting, and sustainability analytics, as financial institutions deepen their integration of ESG considerations into business operations. Companies focusing on blockchain-based sustainable finance within the *Green Digital Asset Solutions* category also experienced significant growth, doubling from four companies in 2023 to eight in 2024. This suggests a growing adoption of blockchain technologies for sustainability purposes, such as green tokenisation and tokenised carbon credit trading. The category *Green Digital Risk Analysis and InsurTech* expanded from one company in 2023 to three in 2024. Conversely, the *Green Digital Payment and Account Solutions* category saw a slight decline from three companies in 2023 to two in 2024, indicating slower development or reduced market traction in this segment. A new category, *Green Lending and Deposit Solutions*, emerged in 2024 with two companies, signalling the growing prevalence of sustainable financing models, including green loans and impact-driven credit solutions.

2.3. Ecosystem Interconnections

One of the key challenges in analysing the Swiss and Liechtenstein FinTech ecosystem is the industry-agnostic

[7] Note that a corresponding analysis was not conducted in 2022.

nature of many technology-driven companies. This makes it difficult to clearly classify them within the FinTech category, as defined in Chapter 1, since their solutions often span multiple domains without a distinct focus on financial services. Furthermore, the absence of a universal definition of FinTech adds to the complexity, as the term frequently overlaps or integrates with other sectors. As a result, the FinTech sector is inherently interconnected with other technology-driven ecosystems, fostering cross-industry innovation and collaboration. Two of such ecosystems that are often discussed in relation to FinTech are InsurTech and RegTech. InsurTech refers to the use of innovative technologies to enhance and streamline the insurance industry, improving, for example, efficiency, customer experience, and risk assessment through digital solutions, data analytics, and automation. RegTech focuses on leveraging technology to help institutions comply with laws and regulations more effectively.

Figure 2.21 presents a comparison of the sizes and overlap of the Swiss and Liechtenstein FinTech, RegTech, and InsurTech ecosystems. Additional data for the InsurTech and RegTech ecosystems are sourced from Pugnetti and Schreiber (2024) and Swisscom (2024), respectively.

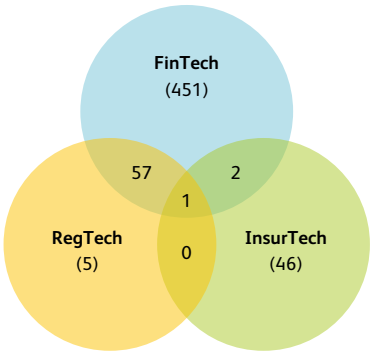

Figure 2.21: Number of companies in the Swiss and Liechtenstein FinTech, RegTech, and InsurTech sectors, including areas of overlap

The figure shows that the FinTech ecosystem in Switzerland and Liechtenstein is the largest, with a total of 511 companies. RegTech follows with 63 companies, while InsurTech has 49 companies. The majority of FinTech companies, 451 in total, operate independently without connections to RegTech or InsurTech. This indicates a strong core of companies focused solely on financial technology solutions. There are 57 companies operating at the intersection of FinTech and RegTech, highlighting the importance of compliance and regulatory technologies within financial services. The overlap between FinTech and InsurTech is minimal, with only two companies active in both sectors. Only one company operates across all three ecosystems, indicating that comprehensive cross-sector solutions are uncommon and that opportunities for synergies remain limited. Five RegTech companies operate independently of both FinTech and InsurTech, offering regulatory solutions for sectors beyond finance and insurance, such as general data compliance services. In contrast, 46 InsurTech companies operate independently, reflecting the distinct evolution of technology-driven insurance solutions. Notably, there are no companies active in both RegTech and InsurTech without involvement in FinTech, underscoring the limited overlap between these two sectors.

Overall, the Swiss and Liechtenstein FinTech ecosystem demonstrates varying levels of interconnectedness with other technology-driven sectors, particularly InsurTech and RegTech. RegTech has emerged as a significant segment within the FinTech landscape, driven by the increasing reliance on technology for regulatory compliance, risk management, and anti-money laundering processes. In contrast, companies that also cater to the insurance market remain relatively rare, underscoring the niche status of InsurTech within the broader FinTech sector. This limited overlap can be attributed to fundamental differences between insurance and banking services, resulting in relatively few opportunities for synergy.

2.4. Funding of FinTech Companies

This section explores the financial activities fuelling the growth of the global and Swiss and Liechtenstein FinTech sector and examines the exit strategies employed by companies within the industry. The analysis focuses on key aspects such as venture capital funding (Section 2.4.1), token sales (Section 2.4.2), mergers and acquisitions (Section 2.4.3), and initial public offerings (Section 2.4.4).

2.4.1 Venture Capital

Venture capital (VC) is a form of private equity investment where funding is provided to early-stage, high-potential start-ups and growing companies in exchange for equity.

It plays a significant role in the development of FinTech companies, enabling them to innovate and scale in a competitive market. For early-stage start-ups, VC funding provides the capital needed to develop products, enter the market, and establish operations. For more mature FinTech companies, it supports scaling, geographic expansion, and technology enhancement. Hence, VC funding is essential for fostering growth, driving market innovation, and sustaining competitiveness across different stages of business maturity.

Figure 2.22 highlights global FinTech VC investment trends from 2015 to 2024, showcasing significant fluctuations in both the number of VC-backed deals and the total funding volume.

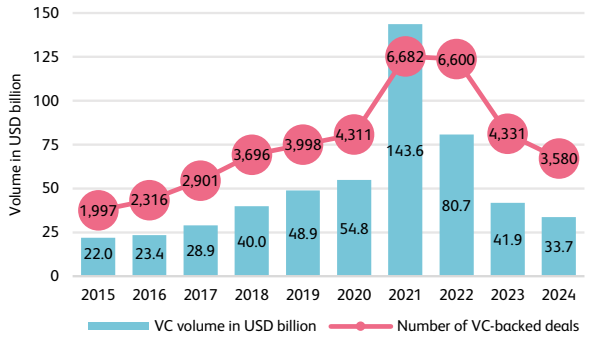

Figure 2.22: Global venture capital investments in FinTech (sources: CB Insights (2022, 2023, 2025))

After steady growth from 2015 to 2020, investments surged in 2021, marking a record high of 6,682 deals and USD 143.6 billion in funding. However, this peak was followed by a decline in 2022, where funding volume dropped to USD 80.7 billion despite a relatively high number of deals (6,600). The downward trend continued into 2023 and 2024, with a significant reduction in both deal activity and funding levels. In 2024, the number of deals fell to 3,580, and funding volume dropped to USD 33.7 billion, reflecting a more cautious investment environment.

The Swiss and Liechtenstein FinTech sector has also experienced a noticeable decline in VC activity, as illustrated in Figure 2.23. Corresponding data is derived from publicly available sources, such as industry reports and newsletters. Among these sources is the "Swiss Venture Capital Report 2025" by Startupticker.ch (2025).

The graph on the left-hand side highlights that from 2015 to 2024, the total number of VC rounds in Switzerland's and Liechtenstein's FinTech sector exhibited fluctuation. After a total of 25 rounds in 2015, activity rose to 74 rounds in 2019. This was followed by a dip to 61 rounds in 2020 before a record high of 87 rounds in 2021. Subsequently, VC activity declined continuously, with 54 rounds recorded in 2024. Seed rounds peaked at 45 in 2022 but dropped sharply to 16 by 2024. Series A rounds remained relatively stable, with 26 rounds in 2024, similar to earlier peaks in 2017 and 2021. Series B rounds, in contrast, experienced a gradual decline, falling from 28 in 2021 to just twelve rounds in 2024. These developments indicate a more selective investment environment across all funding stages in recent years.

The right-hand graph of Figure 2.23 illustrates the VC funding volume in Switzerland's and Liechtenstein's FinTech sector from 2015 to 2024. Investment volumes showed notable fluctuation, aligned with general trends in the number of rounds. Beginning at CHF 27 million in 2015, funding rose significantly to CHF 324 million by 2018. After a decline to CHF 210 million in 2019, volumes rebounded, reaching a record high of CHF 605 million in 2022. However, this surge was followed by a downturn, with volumes decreasing to CHF 301 million in 2024, mirroring the reduction in total VC rounds. Seed funding peaked at CHF 232 million in 2023, but fell sharply to CHF 19 million in 2024. Series A funding saw its highest level of CHF 168 million in 2021, before stabilising at CHF 113 million in 2024. Series B funding, which in some years was significantly influenced by individual mega rounds exceeding CHF 100 million, displayed significant volatility. It peaked at CHF 397 million in 2022 before declining to CHF 169 million in 2024. Once again, these trends reflect heightened caution and selective investment behaviour across all funding stages in recent years.

Figure 2.24 illustrates the breakdown of the VC funding volume in 2024 by product area (left-hand graph) and technology category (right-hand graph).

The data on Swiss and Liechtenstein FinTech VC funding by product area reveals significant disparities in both the number of rounds and funding volumes. *Banking Infrastructure* attracted the largest share of investment, with

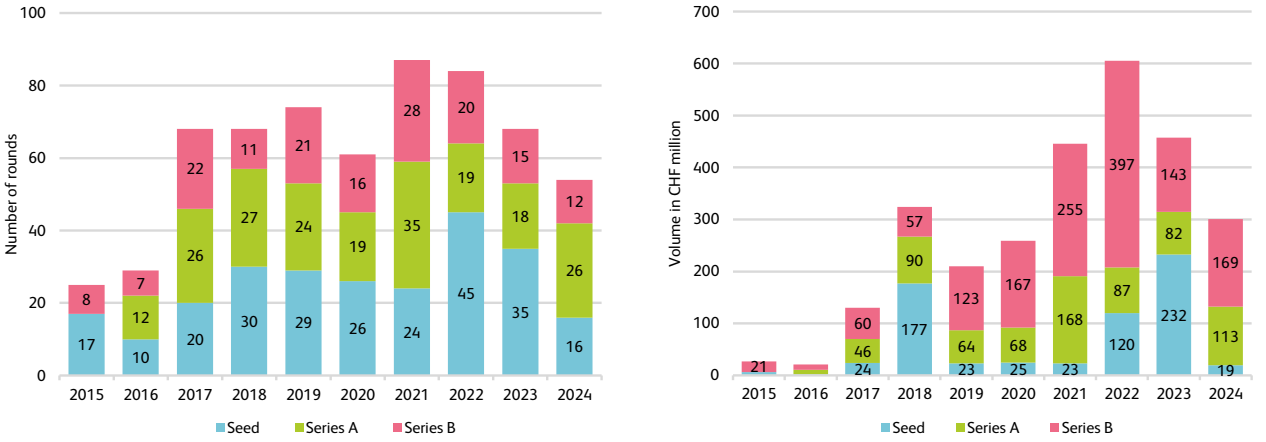

Figure 2.23: VC activity in the Swiss and Liechtenstein FinTech sector by year

CHF 182 million across 19 rounds. *Investment Management*, the product area with the largest amount of active FinTech companies in Switzerland, recorded the highest number of rounds at 26, totalling CHF 54 million in volume. In contrast, the *Payment* product area had only eight rounds but received CHF 65 million, suggesting that although fewer deals were made, they were of relatively higher value. *Deposit & Lending* saw minimal activity, with just one round and a CHF 0.4 million in funding, indicating limited investment interest in this segment in 2024.

The VC volume by technology category, as shown in the right-hand graph of Figure 2.24, reveals significant differences in both deal activity and funding allocation. *Distributed Ledger Technology* led the sector, attracting CHF 174 million across 24 rounds, signalling strong investor interest in blockchain and related innovations. *Process Digitisation / Automatisation / Robotics* followed, securing CHF 118 million across 17 rounds. In contrast, *Analytics / Big Data / Artificial Intelligence* received limited funding, with just CHF 9 million distributed over twelve rounds.

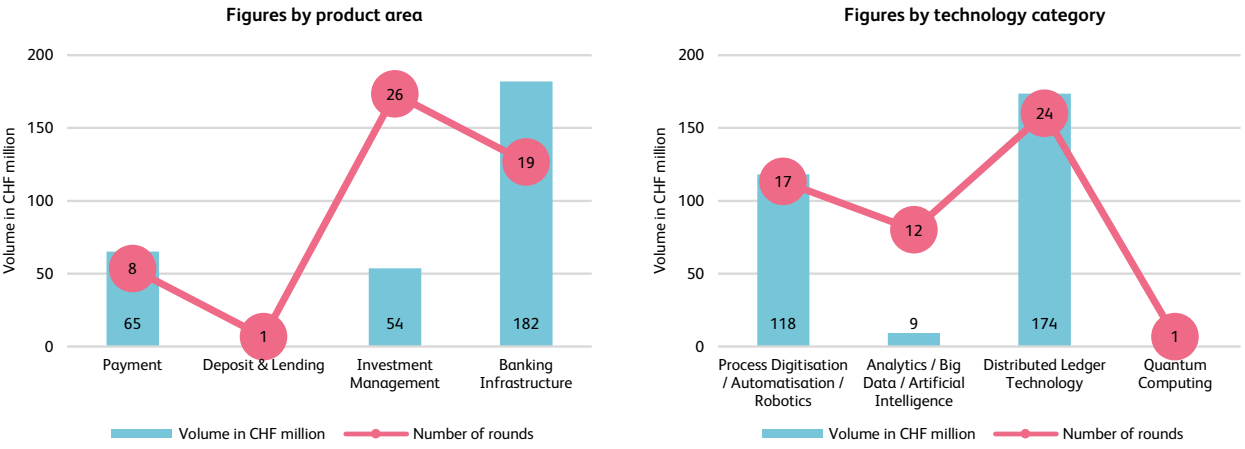

Figure 2.24: VC investments in Swiss and Liechtenstein FinTech companies in 2024 by product area (left-hand graph) and technology category (right-hand graph)

Quantum Computing experienced just one round of unknown volume, which can be explained by the fact that only a single company was active in this technology category by the end of 2024.

Figure 2.25 illustrates VC funding volumes by canton over the past three years, shedding light on recent shifts in the local FinTech investment landscape. The data highlights significant regional variation in funding trends between 2022 and 2024.

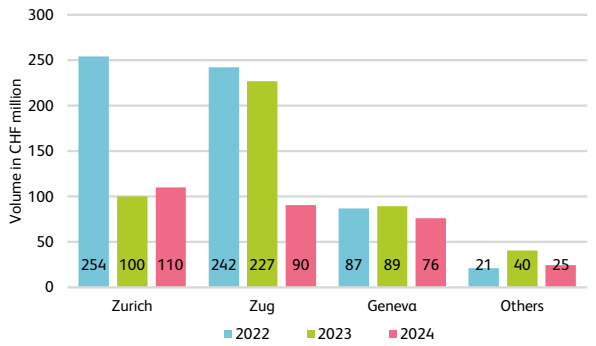

Figure 2.25: VC volume in Swiss and Liechtenstein FinTech companies by region and year

Zurich maintained a leading role with CHF 254 million in funding in 2022, but this fell sharply to CHF 100 million in 2023 before a slight recovery to CHF 110 million in 2024. Zug experienced a similar trajectory, beginning at CHF 242 million in 2022, holding relatively strong at CHF 227 million in 2023, and then dropping significantly to CHF 90 million in 2024. In contrast, Geneva displayed greater stability, recording CHF 87 million in 2022 and experiencing only minor changes, with CHF 89 million in 2023 and CHF 76 million in 2024. Other cantons saw smaller but more variable funding, starting at CHF 21 million in 2022, increasing to CHF 40 million in 2023, and then declining to CHF 25 million in 2024. These trends reaffirm Zurich and Zug as dominant hubs for FinTech investment, though both saw significant reductions after 2022. Notably, the sharp decline in overall VC volume in 2024 was driven primarily by a decrease in funding for FinTech companies based in Zug.

2.4.2 Token Sales

Token sales have emerged as an alternative financing mechanism for FinTech companies, particularly those leveraging DLT. These sales enable projects to raise capital while fostering innovation in blockchain-based solutions. Analysing token sale trends provides insights into the popularity of this financing mechanism. A corresponding evaluation is presented in Figure 2.26, which highlights the annual volume and number of token sales globally since 2017, illustrating shifts in market activity and adoption over time. Note that the data encompasses both private token sales, conducted directly with select investors in a closed process, and public token sales, open to a broader audience through direct project platforms, centralised exchanges, or decentralised exchanges that enable wider participation.

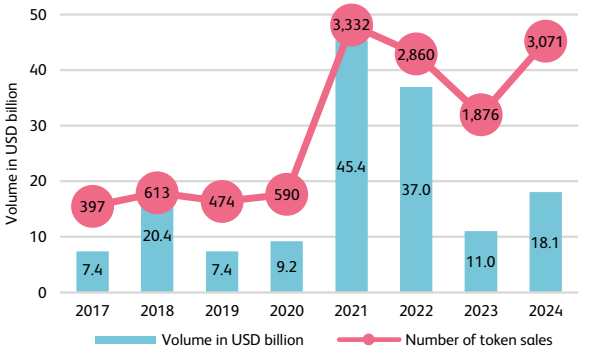

Figure 2.26: Global public and private token sales across all sectors (source: CryptoRank (online))

The global token sales market has shown significant fluctuations over the years, with a notable surge in both volume and activity peaking in 2021 at USD 45.4 billion across 3,332 sales. This was followed by declines in 2022 and 2023, with volumes falling to USD 37 billion and USD 11 billion, respectively, reflecting broader price corrections in the crypto asset market during that period. However, 2024 indicates a recovery, with volumes rebounding to USD 18.1 billion and the number of token sales rising to 3,071. This renewed growth aligns with generally positive price trends among leading crypto assets, signalling improving market sentiment. Despite these gains, the market has yet to repeat the unprecedented highs of 2021.

In Switzerland, one token sale by a FinTech company was recorded in 2024. RA2 TECH SA, a provider of a decentralised exchange platform, raised USD 4.5 million in a Seed funding round (Startupticker.ch, 2024d).

2.4.3 Acquisitions

Acquisitions of companies can serve as an indicator of market consolidation, maturity, and strategic growth within the FinTech sector, potentially reflecting the increasing integration of innovative technologies into traditional financial systems and larger corporate frameworks. By examining acquisition trends, a deeper understanding of the competitive dynamics, regional hotspots, and the evolving priorities of financial technology firms and investors can be gained. A corresponding assessment is shown in Figure 2.27, depicting the yearly count of FinTech acquisitions since 2010, broken down by geographic region.

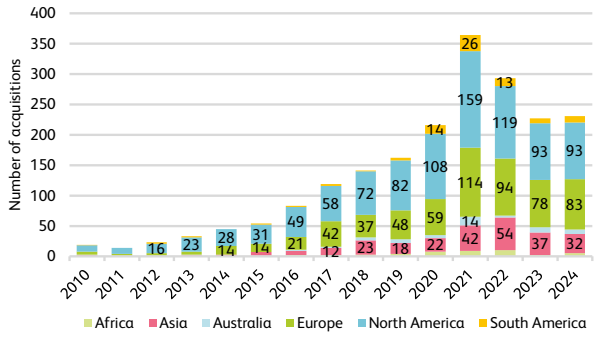

Figure 2.27: Number of FinTech acquisitions by continent and year (source: Crunchbase (online))

It reveals a significant rise in acquisition activity leading up to a peak in 2021, followed by a marked decline in subsequent years. A total of 2,024 acquisitions have been recorded globally since 2010, with North America dominating the landscape with 951 acquisitions, reflecting its status as the largest and most active FinTech market. Europe follows with 621 acquisitions, showing strong activity, particularly between 2018 and 2021, when it recorded its highest annual total (114 acquisitions). Asia, with 259 acquisitions, has seen steady growth, peaking in 2022 (54 acquisitions), though activity tapered slightly in 2023 and 2024. In contrast, other regions have played a smaller role. South America, with 89 acquisitions, showed gradual growth and peaked in 2021 with 26 acquisitions. Australia recorded 55 acquisitions, with occasional spikes such as those in 2021 and 2023, but overall showed less consistent activity. Africa, the least active region with 49 acquisitions, exhibited slow but steady growth, with its highest annual total in 2022 (ten acquisitions).

The Swiss and Liechtenstein FinTech sector counted several takeovers in the year 2024. These include the acquisitions of Etops Group AG by Pollen Street Capital (Startupticker.ch, 2024a), flov technologies AG by STS Digital (Startupticker.ch, 2024c), Inpher Sàrl by Arcium (Startupticker.ch, 2024b), MidFunder AG by Levenue (Levenue, 2024), NetGuardians SA by Summa Equity (Startupticker.ch, 2024e), and Numarics by radicant bank (radicant bank, 2024).

2.4.4 Initial Public Offerings

Initial public offerings (IPOs) can serve as important milestones for FinTech companies, signifying market maturity, investor confidence, and the readiness of firms to scale on a global stage. Tracking IPO trends provides valuable insights into the growth dynamics of the FinTech industry. A corresponding evaluation is presented in Figure 2.28, which illustrates the annual number of FinTech IPOs since 2010, categorised by geographical region.

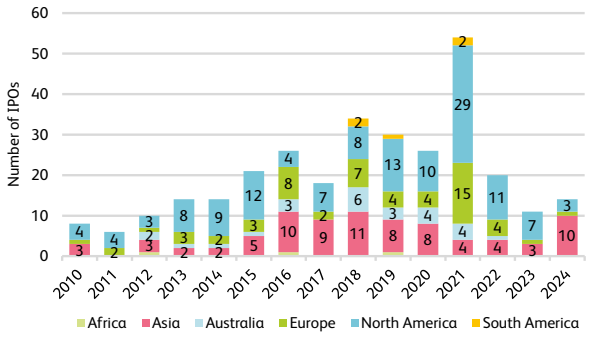

Figure 2.28: Number of FinTech IPOs by continent and year (source: Crunchbase (online))

It highlights regional and temporal trends, with a peak in activity occurring in 2021 (54 IPOs) followed by a notable

decline in subsequent years, with only 14 IPOs in 2024. North America remains the dominant region with a total of 132 IPOs, though its activity has slowed significantly since its 2021 peak. Asia, the second-largest contributor with 82 IPOs, has shown resilience, rebounding to ten IPOs in 2024 after a dip in 2023, signalling its growing strength in the global FinTech ecosystem. Europe, Australia, and South America have seen smaller contributions, with limited activity in recent years, while Africa has recorded no IPOs since 2019, reflecting stark regional disparities. The post-2021 decline in overall IPOs may point to broader market challenges, such as tightening financial conditions or reduced investor appetite, reshaping the global FinTech landscape. Note that of the 306 IPOs recorded in the global FinTech industry since 2010, 36 were subsequently delisted, accounting for twelve percent of the total (Crunchbase, online).

No IPO was recorded in the Swiss and Liechtenstein FinTech sector in 2024.

3. Globally Listed FinTech Companies

Despite remaining below its historical peak, the number of FinTech companies going public rebounded in 2024. By year-end, a total of 389 FinTech firms were listed on stock exchanges worldwide (Crunchbase, online). However, with the total number of publicly traded companies exceeding 53,000 at the end of 2024 (World Federation of Exchanges, 2025), the FinTech sector continues to represent a niche segment within the broader equity market.

Given its continuous innovation and disruptive potential, the FinTech sector plays an increasingly critical role in shaping modern financial services. Yet, despite its influence, there is often limited insight into its collective market performance. A dedicated FinTech index addresses this gap by tracking sector-specific trends, benchmarking FinTech against traditional financial institutions and the broader technology industry, i.e., the two key sectors it bridges.

The following sections outline the methodology behind the construction of the so-called "IFZ FinTech Index" (Section 3.1) and analyse its performance in comparison to relevant benchmarks, including indices tracking the banking and IT sectors (Section 3.2).

3.1. Data and Index Construction

The construction of the IFZ FinTech Index follows a structured, multistep process to ensure the selection of relevant publicly traded companies and the accurate measurement of their market performance. The following steps outline the methodology applied:

Step 1: The initial selection of companies is based on data from Crunchbase (online), using its FinTech industry label as a filtering criterion. To ensure that only publicly traded companies are considered, firms must have either an active status as "listed" or a historical status as "delisted". This step provides the foundational dataset of FinTech firms that have entered public markets.

Step 2: Publicly available information is gathered to classify and segment the identified FinTech companies. Each company is categorised using the FinTech grid introduced in Chapter 1, a framework that differentiates companies based on their product area and technology applied. Additionally, companies are segmented according to their primary customer base (B2B and/or B2C) and their market focus (national or international).

Step 3: To obtain financial data and ensure consistency in tracking market performance, the dataset is cross-referenced with Bloomberg L.P. (2025). For each company, the following key data points are extracted:

- Stock price ticker
- Monthly stock prices in USD
- Monthly market capitalisations in USD

Step 4: To maintain a focus on investable FinTech companies, micro-cap companies, defined as those with a market capitalisation of less than USD 150 million, are excluded from the index. This threshold is reviewed monthly to ensure that only companies with a significant market presence are included, thereby improving the reliability and relevance of the index as a benchmark for FinTech sector performance.

Step 5: Using the finalised dataset, an equally weighted, annually rebalanced index, the IFZ FinTech Index, was established.

A snapshot of the IFZ FinTech Index is given in Table 3.1. As of 31 December 2024, the IFZ FinTech Index consisted of 157 constituents, collectively representing a total market capitalisation of USD 2.51 trillion. In terms of product area exposure, the largest share of companies is accounted for by the *Banking Infrastructure* product area with 43.9 percent of the total, followed by *Payments* with (20.4 %), *Investment Management* (18.5 %), and *Deposit & Lending* (17.2 %). From a technology perspective, the dominant category is *Process Digitisation / Automatisation / Robotics*, accounting for 78.9 percent of the index. Companies utilising technologies from the *Analytics / Big Data / Artificial Intelligence* category make up 15.3 percent and *Distributed Ledger Technology* 5.8 percent of the index. No FinTech companies were found to fall under the category of *Quantum Computing*.

Table 3.1: Snapshot of the IFZ FinTech Index as of 31 December 2024

IFZ FinTech Index	
Currency	USD
Number of constituents	157
Market capitalisation in USD billion	2,510
Product area exposure	
Payment	20.4 %
Deposit & Lending	17.2 %
Investment Management	18.5 %
Banking Infrastructure	43.9 %
Technology category exposure	
Process Digitisation / Automatisation / Robotics	78.9 %
Analytics / Big Data / Artificial Intelligence	15.3 %
Distributed Ledger Technology	5.8 %
Customer segment exposure	
B2B	33.1 %
B2B & B2C	40.8 %
B2C	26.1 %
Market served exposure	
National	34.8 %
International	65.2 %
Regional exposure	
North America	36.9 %
Asia	36.9 %
Europe	14.0 %
Other continents	12.2 %

Regarding customer segment exposure, the majority of companies serve both B2B and B2C markets (40.8 %), followed by those focused solely on B2B clients (33.1 %) and B2C customers (26.1 %). The index also reflects the global nature of the FinTech sector, with 65.2 percent of its constituents operating in international markets, while 34.8 percent remain focused on national markets. Geographically, the index has a relatively strong presence in North America and Asia, each accounting for 36.9 percent of the total market exposure. Europe represents 14.0 percent, while the remaining 12.2 percent is distributed across other continents.

A comparison between the companies in the IFZ FinTech Index and those in the Swiss and Liechtenstein FinTech sector reveals differences in market focus, product specialisation, and technological maturity. The Swiss and Liechtenstein FinTech sector demonstrates a significantly higher concentration in the *Investment Management* product area, while the technologies employed tend to be at earlier stages of development. Moreover, the share of FinTech companies exclusively serving the domestic market is relatively lower, and purely B2B business models are more prevalent, reflecting a comparatively weaker emphasis on hybrid or B2C-oriented approaches.

3.2. Performance of the IFZ FinTech Index

This section analyses the market performance of the IFZ FinTech Index in comparison to key global benchmarks, including the MSCI World Information Technology Price Index, MSCI World Banks Price Index, and the MSCI World Price Index. By examining returns, volatilities, and risk-adjusted performances, the analysis provides insights into how publicly listed FinTech companies compare to the broader financial services and IT sectors, as well as the global equity market.

The comparison of the IFZ FinTech Index with the MSCI World Price Index, MSCI World Banks Price Index, and MSCI World IT Price Index from the end of 2014 to the end of 2024, illustrated in Figure 3.1, reveals distinct performance trends across sectors. Although all indexes exhibit a positive cumulative return over the observation period, the MSCI World IT Price Index records the highest increase, while the MSCI World Banks Price Index shows the lowest. The MSCI World Price Index and the IFI FinTech Index fall in between.

Table 3.2 takes a different perspective on the performance comparison and includes the annualised returns, volatilities, and Sharpe ratios[1] as a measure of the risk-adjusted performance of the individual indices over the observation period.

[1] The market yield on US Treasury Securities at one-month constant maturity serves as a proxy for the risk-free rate. Corresponding data is sourced from the Federal Reserve Bank of St. Louis (online).

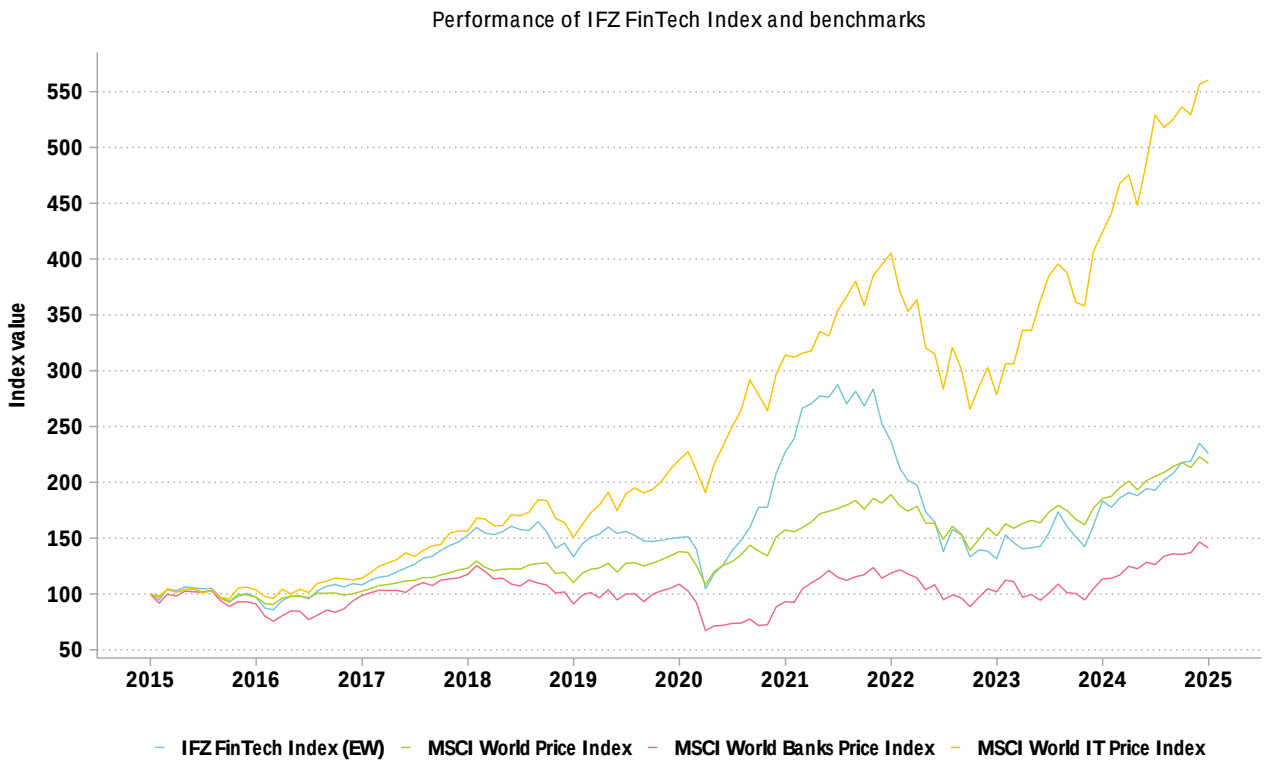

Figure 3.1: Comparison of the IFZ FinTech Index with selected benchmarks

Table 3.2: Annualised performance metrics of the IFZ FinTech Index and benchmarks

Index	Mean return	Volatility	Sharpe ratio
IFZ FinTech	8.5 %	23.1 %	0.29
MSCI World	8.0 %	15.1 %	0.41
MSCI World Banks	3.5 %	22.2 %	0.08
MSCI World IT	18.8 %	19.5 %	0.87

The IFZ FinTech Index achieved an annualised mean return of 8.5 percent, slightly outperforming the MSCI World Index, which recorded an 8.0 percent return, and significantly exceeding the MSCI World Banks Index at 3.5 percent. However, the MSCI World IT Index delivered a substantially higher annualised return of 18.8 percent, underscoring the strong growth dynamics within the broader technology sector.

In terms of volatility, the IFZ FinTech Index exhibited the highest level among the indices at 23.1 percent. The MSCI World Banks Index followed closely with a volatility of 22.2 percent, while the MSCI World Index showed notably lower volatility at 15.1 percent. The MSCI World IT Index, despite its strong returns, maintained a comparably moderate volatility level of 19.5 percent.

Risk-adjusted performance, measured by the Sharpe ratio, highlights further distinctions. The IFZ FinTech Index posted a Sharpe ratio of 0.29, suggesting that while the index generated decent returns, the high volatility diminished its overall risk-adjusted appeal. In contrast, the MSCI World Index achieved a higher Sharpe ratio of 0.41, indicating more efficient returns relative to its lower volatility. The MSCI World Banks Index lagged significantly with a Sharpe ratio of 0.08, reflecting both low returns and high volatility, while the MSCI World IT Index stood out with a Sharpe ratio of 0.87, underscoring its

superior combination of high returns and comparatively moderate risk. Hence, the technology sector consistently outperformed across most metrics, highlighting the challenges FinTech companies face in matching the growth efficiency of the broader technology industry.

The IT sector's strong performance is also evident in 2024, as shown in Table 3.3, achieving a cumulative return of 32.2 percent, the highest among the compared indices. The MSCI World Banks Index followed with a cumulative return of 24.5 percent, slightly outperforming the IFZ FinTech Index, which posted a 23.2 percent gain. Despite this, the IFZ FinTech Index significantly outperformed the broader MSCI World Index, which recorded a more modest cumulative return of 17.0 percent. This stronger performance in 2024 enabled the IFZ FinTech Index to overtake the MSCI World Index in terms of total cumulative return over the entire observation period.

Table 3.3: Performance metrics of the IFZ FinTech Index and benchmarks in 2024

Index	Mean return	Volatility	Sharpe ratio
IFZ FinTech	23.2 %	12.2 %	1.40
MSCI World	17.0 %	9.6 %	1.16
MSCI World Banks	24.5 %	12.4 %	1.48
MSCI World IT	32.2 %	15.0 %	1.71

From a risk-adjusted perspective, the IFZ FinTech Index ranked third in 2024 with a Sharpe ratio of 1.40. While this represents a solid improvement over the MSCI World Index's Sharpe ratio of 1.16, it remained below the MSCI World Banks Index at 1.48 and the leading MSCI World IT Index at 1.71. This indicates that, despite delivering strong absolute returns, the FinTech sector's risk-return efficiency was slightly less favourable compared to the banking and IT sectors.

To further contextualise the performance metrics, an analysis of Pearson return correlations between the IFZ FinTech Index and the benchmark indices provides additional insights into the relationships and co-movements between these market segments. The corresponding results are presented in Table 3.4.

It shows that the IFZ FinTech Index exhibits a strong positive correlation of 0.82 with the MSCI World Index, indicating that FinTech stocks tend to move closely with the broader equity market. This high correlation suggests that macroeconomic factors and global market sentiment significantly influence the FinTech sector's performance. The correlation between the IFZ FinTech Index and the MSCI World Banks Index stands at 0.76, reflecting the FinTech sector's close ties to traditional financial services, albeit slightly weaker than its correlation with the overall market. This relationship highlights the interconnectedness of FinTech and banking, particularly in areas where digital solutions directly impact traditional banking services. Finally, the correlation between the IFZ FinTech Index and the MSCI World IT Index is slightly lower at 0.72. While FinTech companies often leverage technological innovations, this relatively weaker correlation compared to the MSCI World Index suggests that FinTech performance is not solely driven by technology trends but is also shaped by financial industry dynamics.

Table 3.4: Return correlations of the IFZ FinTech Index and benchmarks

	IFZ FinTech	MSCI World	MSCI Banks	MSCI IT
IFZ FinTech	1			
MSCI World	0.82	1		
MSCI Banks	0.76	0.80	1	
MSCI IT	0.72	0.89	0.57	1

Classifying globally listed FinTech companies by product areas and technology categories within the FinTech grid, as well as target markets, enables a more granular analysis of the financial performance across specific FinTech subsegments. This segmentation provides valuable insights into how varying business models, technological innovations, and market orientations shape the performance dynamics of the sector.

The performance developments of the FinTech subindices by product areas are presented in Figure 3.2. It shows distinct trends from 2015 to the end of 2024. The *Payment* area consistently outperformed, peaking at 565 in August 2021 and ending 2024 at 430. *Investment Management* experienced rapid growth in late 2020, reaching a high of 550 in early 2021. However, this area was notably volatile, ending 2024 at 325 following a significant correction in 2022. *Banking Infrastructure* demonstrated steadier, albeit slower, growth with moderate volatility, peaking at 201 in late 2021 before settling

at 186 by year-end 2024. In contrast, the *Deposit & Lending* product area underperformed, reaching a peak of 154 in mid-2021 but declining steadily to 88 by the end of the period.

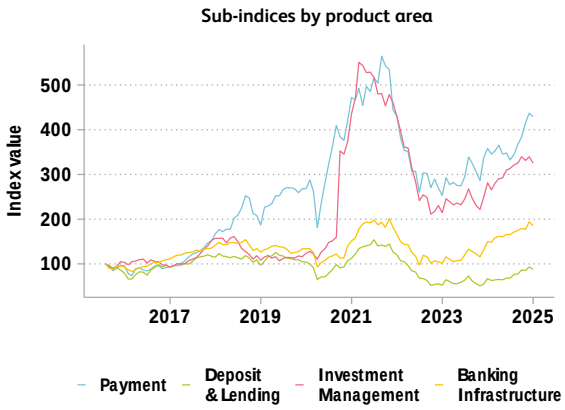

Figure 3.2: Comparison of the product area sub-indices

Figure 3.3 presents an analogous illustration of the sub-indices development by technology category. Between 2015 and the end of 2024, the *Process Digitisation / Automatisation / Robotics* category experienced significant growth, accelerating from mid-2020 and peaking at 295 in August 2021.

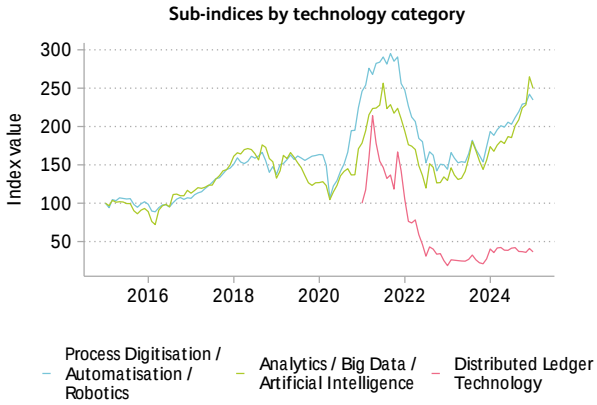

Figure 3.3: Comparison of the technology category sub-indices

This was followed by a correction in 2022, after which the category stabilised at 235 by the end of 2024. The *Analytics / Big Data / Artificial Intelligence* category followed a similar trajectory but outperformed the *Process Digitisation / Automatisation / Robotics* category in 2024, closing at 250 and achieving a higher cumulative return over the entire sample period. Data for the *Distributed Ledger Technology* category has been available only since late 2020, as fewer than five companies were previously classified under it, which was insufficient for constructing a diversified index. After surging to 214 in March 2021, the category experienced a sharp decline, falling to 19 by the end of 2022 and stabilising around 37 in 2024. Consequently, it recorded significant negative performance over the sample period.

A breakdown of FinTech sub-indices by customer segments targeted is illustrated in Figure 3.4.

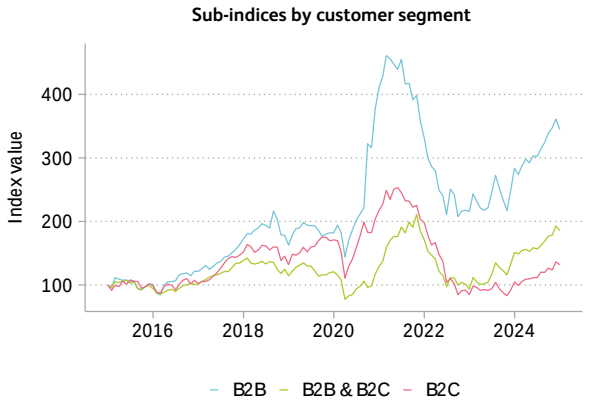

Figure 3.4: Comparison of the customer segments sub-indices

It presents that from 2015 to the end of 2024, companies offering B2B solutions outperformed other segments, steadily rising with a sharp increase from mid-2020, peaking at 461 in February 2021, and ending 2024 at 345 after some volatility. B2C companies experienced moderate growth until 2020, followed by a peak of 249 in February 2021 before undergoing a correction. Recovery in this segment was limited, with the index ending 2024 at 132. The B2B & B2C segment grew more gradually, surpassing B2C in July 2022, reaching a peak of 193 in November 2024,

and finishing slightly lower at 186, reflecting stable but less dynamic progress.

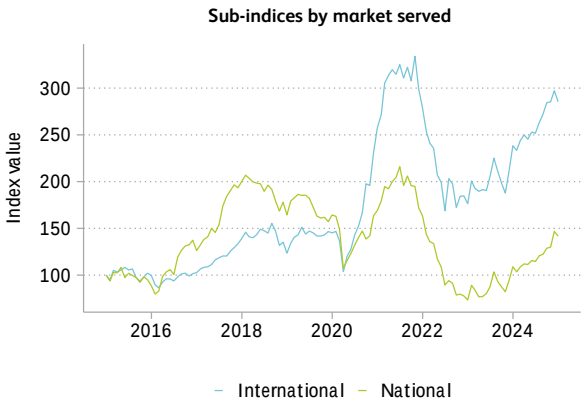

Figure 3.5: Comparison of the geographical orientation sub-indices

A final breakdown of globally listed FinTech companies by their geographical target markets is presented in Figure 3.5. Between 2015 and the end of 2024, companies focusing on national markets initially outperformed those targeting international ones. Both segments saw moderate growth until early 2020, when the international segment overtook the national segment in April and subsequently accelerated, peaking at 334 in October 2021. Despite some volatility, it closed 2024 at 285. In contrast, the national segment reached its peak of 216 in June 2021 before undergoing a sharper correction, bottoming out at 73 by the end of 2022 and partially recovering to 142 by the end of 2024. This development underscores the stronger and more sustained growth trajectory of internationally oriented FinTech companies from 2020 onward.

To summarise, the IFZ FinTech Index more than doubled from 2015 to 2024, in line with the MSCI World Index and outperforming the MSCI World Banks indices but lagging behind the MSCI World IT Index. While returns were strong, the index exhibited the highest annualised volatility and a moderate risk-adjusted performance. Segment analysis shows FinTech companies in the *Payment* area leading cumulative returns over the total sample period. B2B-focused and internationally oriented companies achieved stronger growth in performance, which is in line with the growth in the total number of FinTech companies in these segments in Switzerland and Liechtenstein.

4. FinTech Hub Ranking

The FinTech landscape continues to evolve, driven by advances in technology, regulatory shifts, and changing market dynamics. The "FinTech hub ranking" provides a comprehensive assessment of the global FinTech ecosystem, offering insights into the attractiveness of financial centres worldwide for FinTech companies. While Section 4.1 compares selected FinTech hubs based on the quality of their surrounding conditions, Section 4.2 extends this analysis by also considering the hubs' FinTech output.

4.1. FinTech Hub Ranking

This year's edition of the ranking builds upon established methodologies, incorporating updated data to reflect the latest trends in relevant surrounding factors of FinTech companies in a total of 35 locations from 31 countries. These factors are analysed through four key STEP dimensions, i.e., social, technological, economic, and political/legal. By examining factors such as social environments, technological innovation, economic conditions, and quality of the regulatory frameworks, the ranking aims to provide an objective, data-driven view of how global hubs are performing with regard to their appeal to the FinTech sector. The findings can help policymakers, industry leaders, and other stakeholders to better understand the evolving strengths and weaknesses of key FinTech hubs and identify opportunities for strategic development.

The ranking comprises 71 publicly available indicators, one fewer than in last year's edition due to the lack of updated data. Specifically, indicators without updates since 2022 were excluded to ensure the ranking remains current. Meanwhile, new indicators deemed relevant to the analysis were added. The following year-over-year changes in the indicator selection apply:

- **Exclusions** (older than two years): Ease of getting credit ranking (economic, country-level), ease of protecting minority investors ranking (economic, country-level), resolving insolvency ranking (economic, country-level), starting a business ranking (economic, country-level), cost of redundancy dismissal ranking (political/legal, country-level), economic competitiveness ranking (economic, city-level), global skills ranking (social, country-level), mobile cellular subscription ranking (technological, country-level)

- **No update** (not older than two years): Financial secrecy ranking (economic, country-level), innovation cities ranking (technological, city-level)

- **Inclusions**: Government AI readiness ranking (political/legal, country-level), crypto adoption ranking (technological, country-level), climate policy ranking (political/legal, country-level), cities competitiveness ranking (economic, city-level), AI skills penetration ranking (technological, country-level), entrepreneurial strength ranking (economic, country-level), mobile connectivity ranking (technological, country-level)

A total of eight indicators were excluded due to rankings being more than two years old, while two indicators lacked updates within the past two years. In contrast, seven new indicators were introduced. Since most of the rankings used in this analysis are conducted at the country level, the city-specific perspective adopted may introduce certain constraints. Specifically, of the 71 total indicators, ten are city-level and 61 are country-level. In terms of classification within the STEP dimensions, 20 fall under the social dimension, 23 under technological, 16 under economic, and twelve under the political/legal category.

The final hub ranking is developed through four methodological steps:

Step 1: Indicators are sourced from public databases, focusing on metrics relevant to the FinTech industry. Each indicator is assigned to one of the four dimensions of the STEP framework, i.e., social, technological, economic, or political/legal, based on its contextual relevance. A comprehensive list of all indicators, along with their sources and their association with the STEP dimensions, can be found in Appendix B.

Step 2: Each indicator is ranked for all cities, assigning scores from one (lowest-performing city) to 35 (highest-performing city). For missing data, the

average score of all available indicators for the same city within the dimension is imputed.

Step 3: The ranks of all indicators within a STEP dimension are averaged for each city to compute a subranking score. This score therefore is bound between one (if a city performs worst in each indicator within the respective dimension) and 35 (if a city performs best in each indicator within the respective dimension).

Step 4: The overall score for each city is computed as the sum of its subscores across the four STEP dimensions. Given that there are a total of 35 cities, the total score ranges from four (minimum possible score) to 140 (maximum possible score).

The resulting final FinTech hub ranking for the year 2024 is presented in Figure 4.1. It reveals that Singapore retains its position as the leading FinTech hub with a total score of 109.3, demonstrating strong performance across all dimensions. Zurich and Geneva follow in second and third places with scores of 101.6 and 101.2, respectively, reaffirming their status as prominent global locations for FinTech companies.

Stockholm ranks fourth with a total score of 97.1, leading a cluster of cities with closely grouped scores. New York City secures fifth place with 96.9, followed by San Francisco in sixth with 95.4. Amsterdam rounds out this group in seventh place, achieving a score of 94.7.

London secures eighth place with a score of 91.4, while Berlin and Frankfurt round out the top ten with scores of 86.9 and 86.5, respectively. Notably, the scores of Berlin and Frankfurt are closely aligned with those of Toronto, Sydney, Seoul, and Hong Kong, which follow immediately in the ranking. This suggests that the differences in their positions may be marginal and subject to minor shifts in individual indicators. The ranking highlights the distribution of high-performing FinTech hubs across Europe, North

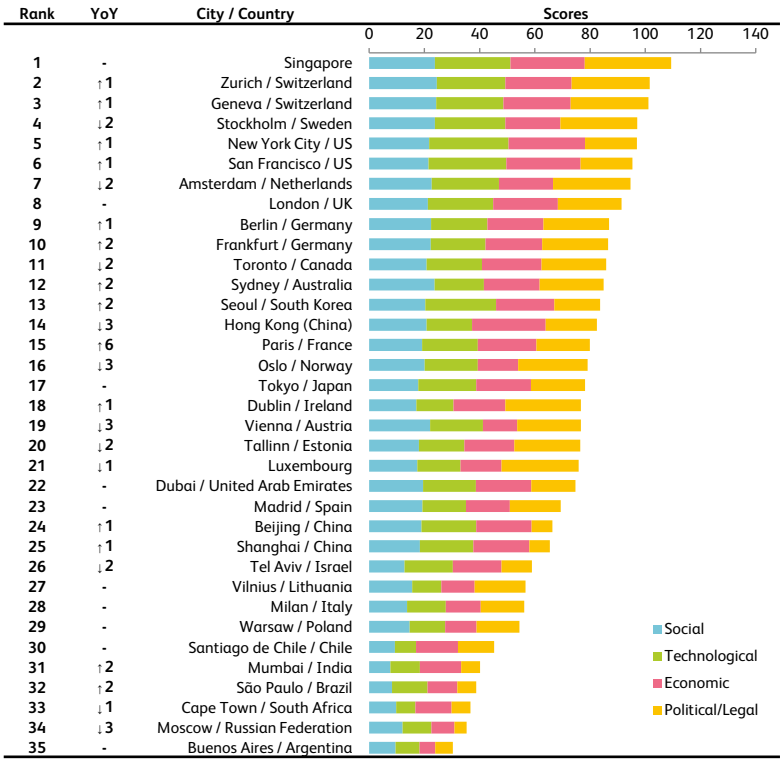

Figure 4.1: FinTech hub ranking

America, and Asia, emphasising their collective strength and influence in the global FinTech ecosystem.

It additionally highlights several notable year-over-year changes. Paris saw the most significant improvement, climbing six places to 15th. Frankfurt, Sydney, Seoul, Mumbai, and São Paulo each advanced by two positions. In contrast, Hong Kong dropped three spots to 14th. Similar declines were observed for Vienna, Oslo, and Moscow, all of which fell three ranks.

The ranks of this year's top ten cities across all editions of the FinTech hub rankings are displayed in Figure 4.2.

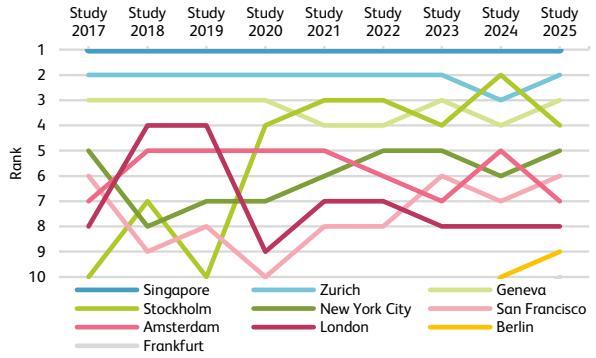

Figure 4.2: FinTech hub ranking by study year

Singapore has consistently maintained its dominant first position since 2017, underscoring its stable leadership in the FinTech ecosystem. Zurich, a long-standing second place holder, briefly dropped to third in the 2024 ranking but has reclaimed its second spot this year. Geneva, another strong performer, alternates between third and fourth positions and has returned to third place in this year's ranking after being ranked fourth in the previous edition.

Stockholm has experienced significant fluctuations, rising from tenth in the inaugural ranking to second in 2024, before dropping to fourth this year, reflecting dynamic competition among top-tier hubs. New York City demonstrates consistent performance, mostly oscillating between fifth and seventh positions and securing fifth place in the latest ranking. San Francisco follows a similar trend, consistently ranked between sixth and tenth, holding sixth position this year.

Amsterdam has shown comparably high stability, consistently ranking between fifth and seventh since 2017. London has maintained its eighth position since 2022, although its earlier rankings were relatively higher, indicating a degree of stagnation. Berlin has made some advancements, climbing from tenth in 2024 to ninth in the current ranking. Similarly, Frankfurt has improved its standing, rising from twelfth in 2024 to tenth this year, marking its first appearance among the top ten FinTech hubs.

The rankings highlight the enduring dominance of established hubs like Singapore, Zurich, and Geneva, while also showcasing the dynamic progress of cities such as Stockholm, Berlin, and Frankfurt, reflecting their growing competitiveness in the FinTech ecosystem. To further explore the performance of the two Swiss hubs, Figure 4.3 examines their average scores relative to the other top ten cities in the most recent ranking, evaluated across the four STEP dimensions over time.

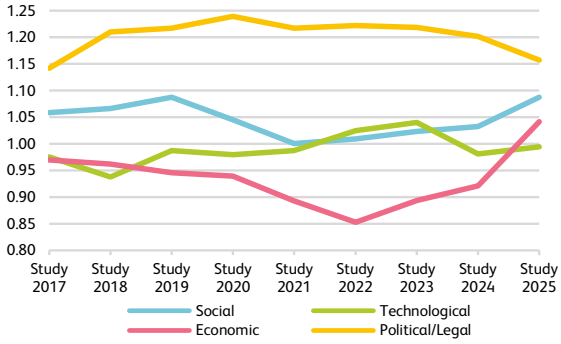

Figure 4.3: Average scores of Swiss cities by STEP dimension and study year

In the social dimension, Swiss cities demonstrate steady growth in their relative performance in recent years. After stabilising around 1.00 to 1.02 between 2021 and 2023, the score increased to 1.09 in 2025, reflecting an improved social environment compared to other top hubs.

The technological dimension shows relative stability, with scores fluctuating slightly between 0.94 and 1.04 over the years. Recently, the score dipped from 1.04 in 2023 to 0.98 in 2024 and 0.99 in 2025, suggesting Swiss cities

have maintained a competitive position, albeit without significant recent gains.

The economic dimension shows a marked improvement for Swiss cities in recent years. After a steady decline from 0.97 in 2017 to a low of 0.85 in 2022, scores began to recover, reaching 0.92 in 2024 and 1.04 in 2025. This suggests a significant enhancement in their economic competitiveness relative to the other top ten cities.

In the political/legal dimension, Swiss cities have consistently scored well above their top ten counterparts. However, their relative advantage has slightly decreased, with scores declining from 1.22 in 2022 and 2023 to 1.16 in 2025, indicating a gradual narrowing of their lead in this area.

Overall, the table highlights the enduring strength of Swiss cities in political/legal and social dimensions, alongside an economic resurgence and stable, competitive performance in technology. These developments underline their well-rounded appeal as FinTech hubs relative to other leading cities.

4.2. Input and Output Comparison

The rankings and performance analysis of FinTech hubs in Section 4.1 provide insights into the external factors that contribute to a location's attractiveness for FinTech companies. However, these assessments focus exclusively on the surrounding ecosystem, without considering the actual size and output of the FinTech industry in these locations. To complement this perspective, this section adopts an output-driven approach, analysing the following three key measures of FinTech industry size:

- Number of FinTech companies per capita
- Number of jobs at FinTech companies per capita
- Total funding of FinTech companies per capita

The FinTech-related output data was sourced from Crunchbase (online), while population data used for per-capita calculations was obtained from United Nations (online). Given the structure of the available data, this analysis is conducted at the country level, in contrast to the city-level focus of the FinTech hub ranking presented in Section 4.1. Consequently, the analysis in this section examines the relative outputs of the local FinTech sectors across 31 countries. The dataset includes a total of 21,979 FinTech companies, collectively employing 3,163,968 people and representing a total financing volume of USD 578 billion. Compared to the previous year, the dataset shows an increase of 1,156 in the number of FinTech companies, 361,788 more jobs, and an additional USD 96 billion in financing volume.

Analogous to the FinTech hub ranking presented in Section 4.1, the three output metrics are ranked individually in descending order across the 31 in-scope countries. This means that countries with better performance on each metric (i.e., more companies, jobs, or funding per capita) are assigned higher ranks, with the top-performing country receiving a rank of 31. The overall output score for each country is then calculated by summing the ranks of these three metrics. As a result, the overall output score ranges from 93 (indicating top performance across all metrics) to three (indicating the lowest performance across all metrics). The results for the top ten countries, based on their overall output scores, are presented in Table 4.1.

Accordingly, Singapore maintains its first-place position, with an overall output score of 92, representing a one-point increase from the previous year. It ranks first in both jobs per capita (up one position) and funding per capita, while remaining second in companies per capita, showcasing a consistent leadership in the relative output of its FinTech sector.

Hong Kong rises to second place with an overall output score of 84 (a five-point improvement). Its rank improved in funding per capita (up three positions to second) and jobs per capita (up two positions to fourth), while its companies per capita rank remains steady at sixth.

Estonia drops one position to third place, with an overall score of 82 (down by four points). Despite retaining the top spot in companies per capita, it saw declines in jobs per capita (down two positions to third) and funding per capita (down two positions to tenth).

Positions four to ten in the FinTech-related output rankings reveal a mix of stability and notable shifts. The United Kingdom ranks fourth with a steady overall score of 79, supported by modest improvements in companies per capita but a slight decline in funding per capita. Luxembourg follows in fifth place with a score of 76, showing strength in jobs per capita but a drop in funding per capita.

Table 4.1: FinTech-related output ranks for the top ten countries of the total output ranking

	Rank (year-over-year change)				
Location	**Companies per capita**	**Jobs per capita**	**Funding per capita**	**Overall output score**	**Total rank (YoY)**
Singapore	2 (±0)	1 (↑1)	1 (±0)	92 (+1)	**1** (±0)
Hong Kong	6 (±0)	4 (↑2)	2 (↑3)	84 (+5)	**2** (↑1)
Estonia	1 (±0)	3 (↓2)	10 (↓2)	82 (−4)	**3** (↓1)
United Kingdom	7 (↑1)	7 (±0)	3 (↓1)	79 (±0)	**4** (↓1)
Luxembourg	3 (±0)	2 (↑1)	15 (↓1)	76 (±0)	**5** (±0)
Switzerland	5 (↓1)	8 (↑2)	8 (↓1)	75 (±0)	**6** (±0)
United Arab Emirates	9 (±0)	6 (↓2)	12 (↓1)	69 (−3)	**7** (↑1)
Australia	13 (±0)	9 (↑5)	6 (↑6)	68 (+11)	**8** (↑6)
Israel	8 (↓1)	13 (↓4)	7 (↓1)	68 (−6)	**8** (↓1)
United States	12 (±0)	12 (±0)	5 (↓1)	67 (−1)	**10** (↓1)

Switzerland secures sixth with a stable score of 75, improving in jobs per capita while slightly declining in the two other metrics. The United Arab Emirates rises to seventh despite a slight score drop, maintaining its companies per capita rank but experiencing declines in jobs and funding. Australia, in eighth place, makes the largest leap, gaining six positions with improvements in both jobs and funding per capita. Israel shares eighth with a score of 68 but experiences declines across all three metrics. The United States rounds out the top ten with a score of 67, holding steady in companies and jobs per capita but slightly dropping in funding.

Figure 4.4 integrates both the input and output perspectives of countries in relation to their FinTech sectors. Specifically, it presents the overall input score, i.e., the overall score of the FinTech hub ranking[1], alongside the overall output score for each country, providing a comprehensive view of their relative performance.

The figure highlights a clear positive relationship between the two metrics, indicating that countries with more favourable surrounding factors for FinTech companies, reflected in higher input scores, tend to also exhibit a higher relative output of the sector. The slope of the dashed magenta line, representing the average relationship between input and output scores, is 0.68. This indicates that, on average, an increase of one in a country's overall input score is associated with an increase of 0.68 in its overall output score. Figure 4.4 further reveals that the relative output of the FinTech sector in Switzerland (CH) aligns closely with what would be expected based on the quality of its surrounding factors.

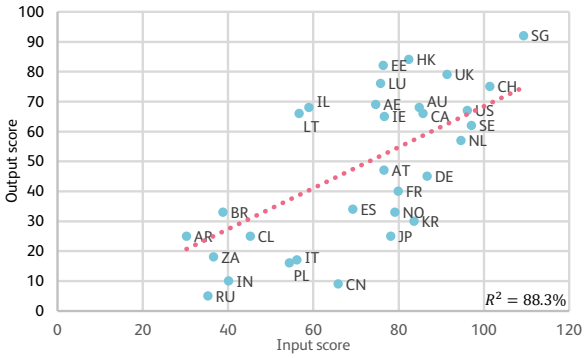

Figure 4.4: Output and input scores by country

Table 4.2 highlights the ten input indicators most strongly Pearson-correlated with countries' FinTech output rank-

[1] For countries with more than one city in the FinTech hub ranking, the average overall score across cities is used.

Table 4.2: Largest correlations between the output rank and individual input indicators

Indicator	Correlation coefficient	STEP dimension	Leading countries
Venture Capital Deals	0.91	Economic	Singapore
Regulatory Quality	0.77	Political/Legal	Singapore
Joint Venture Deals	0.76	Economic	Canada
Tertiary Level Inbound Mobility	0.72	Social	Luxembourg, United Arab Emirates
Talent Competitiveness	0.71	Social	Switzerland
ICT Access	0.69	Technological	Luxembourg, Singapore, Switzerland
Talent Quality	0.69	Social	Switzerland
Mobile Connectivity	0.68	Technological	Singapore
Financial Freedom	0.68	Political/Legal	Australia
Government Effectiveness	0.65	Political/Legal	Singapore

ings. To ensure consistency with the indicator rankings from the FinTech hub ranking, the inverse output rank (where the top rank, i.e., rank one, is assigned to the country with the lowest relative FinTech output) is used, creating a descending order that yields positive and more intuitive correlation coefficients. This approach allows for clearer interpretation when a country's performance on an indicator aligns closely with its FinTech output ranking. The table also provides additional context for each indicator by presenting its correlation coefficient, the corresponding STEP dimension, and the leading countries excelling in that indicator.

The indicator *Venture Capital Deals* exhibits the strongest correlation with the output rank, with a coefficient of 0.91, highlighting its significant economic impact on FinTech sector outputs, with Singapore leading in this area. *Regulatory Quality*, under the political/legal dimension, is also highly correlated (0.77), emphasising the role of strong governance frameworks, again with Singapore as the leading country. *Joint Venture Deals*, another economic indicator, shows a correlation of 0.76, with Canada being a leader in this area. Social indicators such as *Tertiary Level Inbound Mobility* (0.72) and *Talent Competitiveness* (0.71) underscore the importance of human capital and global talent flows, with Luxembourg and the United Arab Emirates leading in mobility, and Switzerland excelling in talent competitiveness.

In the technological dimension, *ICT Access* (0.69) and *Mobile Connectivity* (0.68) emerge as the most correlating indicators, with Luxembourg, Singapore, and Switzerland leading in ICT access, and Singapore excelling in mobile connectivity. Additionally, *Talent Quality* (0.69), a further social indicator, ranks among the top ten, further underscoring Switzerland's strong position in human capital development.

Other political/legal factors, i.e., *Financial Freedom* (0.68) and *Government Effectiveness* (0.65), also show substantial correlations, with Australia leading in financial freedom and Singapore demonstrating government effectiveness.

Overall, the table highlights the multifaceted factors potentially associated with FinTech sector output, spanning social, technological, economic, and political/legal dimensions. These correlations may offer valuable insights into how various input factors, as assessed in the FinTech hub ranking, relate to the output performance of the sector. By bridging the input-oriented hub ranking with output performance, the correlation analysis contributes to a better understanding of how ecosystem characteristics may influence tangible FinTech sector outcomes. However, it is important to emphasise that correlation is not necessarily synonymous with causality. While the relationships identified suggest associations between input factors and output performance, they do not necessarily establish a direct causal relationship.

5. Political and Legal Environment

By Daniel Haeberli & Alexander Wherlock, Attorneys-at-Law, Homburger AG

FinTech companies, which are domiciled in Switzerland or approach Swiss-based clients, need to assess the applicable financial market regulation, in order to determine whether their activities trigger regulatory requirements under the applicable Swiss regulatory framework. Switzerland's[1] regulatory[2] framework governing activities of FinTech companies consists of various federal laws and implementing ordinances. This subchapter outlines the key elements of the relevant Swiss financial market regulations.

- The *first part* provides an overview of the Financial Services Act (Section 5.1.1) and the Financial Institutions Act (Section 5.1.2), governing the provision of financial services, offering financial instruments and the respective licensing requirements in Switzerland.
- The *second part* then discusses Switzerland's FinTech specific regulation (Section 5.2.1) as well as select federal laws, which may apply to FinTech related activities (Section 5.2.2).
- Finally, the *third part* outlines the *FINMA* categorisation of tokens (Section 5.3.1) and summarises the cornerstones of the Swiss DLT Law, which entered into force in 2021 (Section 5.3.2).

5.1. Swiss Financial Market Architecture – FinSA and FinIA

The Financial Services Act ("FinSA") sets out the supervisory framework governing the provision of financial services and the offering of financial instruments in Switzerland. The Financial Institutions Act ("FinIA") provides for a comprehensive supervisory licensing regime applicable to portfolio managers, trustees, managers of collective investment schemes, fund management companies and securities firms.

FinSA and FinIA apply to both "traditional" financial service providers and FinTech companies engaging in regulated activities. For FinTech companies, in particular the following elements of the Swiss supervisory framework may be of relevance:

- The provision of portfolio management or investment advice may trigger requirements to comply with rules of conduct (Section 5.1.1.2.2) or organisational rules (Section 5.1.1.2.3) under FinSA, even if such services are provided into Switzerland on a strict cross-border basis. In addition, the performance of portfolio management activities may trigger licensing requirements under FinIA (Section 5.1.2).
- Companies trying to obtain funding in Switzerland through the issuance of (tokenised) equity rights and/or bonds may need to comply with the prospectus regime set out under FinSA (Section 5.1.1.2.6).

5.1.1 Financial Services Act (FinSA)

With regard to FinSA, FinTech companies must in a first step assess whether their activities are within the scope of application of FinSA (Section 5.1.1.1). If this is the case, a series of requirements and duties may apply, in particular with regard to client segmentation, rules of conduct, organisational requirements and prospectuses (Section 5.1.1.2). Non-compliance with FinSA requirements may lead to criminal sanctions and fines.[3] Furthermore, if the relevant individual or legal entity is subject to prudential supervision in Switzerland, non-compliance may also have regulatory implications.

[1] This chapter does not discuss any regulatory frameworks of jurisdictions other than Switzerland.

[2] This chapter focuses on regulatory aspects. There are other legal aspects which may be relevant for FinTech companies and FinTech related activities such as questions concerning tax law, contract law, intellectual property or data protection. Such legal aspects are not covered herein.

[3] Articles 89 et seqq. FinSA.

5.1.1.1 Scope of Application

FinSA applies to financial service providers, client advisers as well as producers and distributors of financial instruments.[4]

Individuals as well as legal entities that qualify as a *Financial Service Provider* are subject to FinSA, if they provide Financial Services (see definition below) on a commercial basis in Switzerland or to Swiss-based clients.[5] Consequently, a FinTech company must in particular assess the following:

1. Are Financial Instruments (see definition below) involved and do the activities constitute Financial Services?

2. Are such Financial Services provided on a *commercial basis*?

3. Are such Financial Services provided *in Switzerland* or *to Swiss-based clients*?

When assessing whether a specific activity qualifies as a Financial Service under FinSA, in particular the following definitions are of relevance:

- *Financial Instruments* within the meaning of FinSA are equity and debt securities, including bonds, units in collective investment schemes, structured products, derivatives and certain types of structured deposits ("Financial Instruments").[6] Pure cryptocurrencies do, for example, not qualify as Financial Instruments. In contrast, certain asset tokens may be deemed Financial Instruments.

- *Financial Services* within the meaning of FinSA are the following activities: (1) acquisition or disposal of Financial Instruments, (2) receipt and transmission of orders in relation to Financial Instruments, (3) management of Financial Instruments (portfolio management), (4) provision of personal recommendations relating to transactions regarding Financial Instruments (investment advice), and (5) granting of loans to finance transactions regarding Financial Instruments ("Financial Services").[7]

The mere offering of Financial Instruments does, in principle, not qualify as a Financial Service. However, there is only limited guidance with regard to the question under which circumstances a specific activity would be considered as a mere offer and hence not a Financial Service.

A commercial activity is an independent economic activity pursued on a permanent and for-profit basis. Financial Services are presumed to be provided on such *commercial basis* if the relevant Financial Service Provider (i) either provides Financial Services to more than 20 clients or (ii) promotes the provision of Financial Services in advertisements, prospectuses, circulars or electronic media (irrespective of whether such Financial Service Provider services 20 or less clients).

Financial Services are deemed to be provided *in Switzerland* if the Financial Service Provider is either (i) domiciled in Switzerland or registered in the Swiss commercial register or (ii) domiciled abroad but provides the relevant services to clients based in Switzerland. To the extent a Financial Service Provider domiciled abroad performs Financial Services on behalf of Swiss clients, FinSA will apply, also on a strict cross-border basis, irrespective of whether the relevant Financial Service Provider maintains a physical presence in Switzerland.

The latter, in particular, has an impact on FinTech companies domiciled abroad, which engage in activities in the Swiss market without maintaining a physical presence in Switzerland. For example, a foreign FinTech company providing portfolio management services or investment advice to Swiss-based clients via an online application will be subject to FinSA and certain requirements set-out thereunder. In this context, it must be noted that the requirements under the FinSA largely mirror requirements set out in corresponding regulations of the European Union ("EU")[8], but that there are nonetheless notable differences and therefore a FinTech company compliant with EU rules is not automatically compliant with Swiss regulatory framework.

[4] Article 2 para. 1 FinSA.

[5] Article 3 let. d FinSA.

[6] Article 3 let. a FinSA.

[7] Article 3 let. c FinSA. Note: Article 3 para. 3 FinSO exempts from the definition of Financial Services the provision of advice regarding the structuring or raising of capital as well as the provision of advice in the context of mergers and acquisitions or the acquisition or sale of participations and the services related to such advice.

[8] MiFID II, Prospectus Directive, PRIIPs.

However, there are certain exemptions under FinSA, specifically applicable to Financial Service Providers domiciled outside of Switzerland. Pursuant to a *reverse-solicitation* exemption, the FinSA does not apply to:

- Financial Services provided by a foreign Financial Service Provider as part of a previously existing client relationship (e.g., an existing portfolio management or investment advisory agreement) that was entered into at the express initiative of a Swiss-based client; and
- Financial Services provided by a foreign Financial Services Provider that have been expressly requested by a Swiss-based client on such client's own initiative.[9]

5.1.1.2 Key Elements

Key elements set out under FinSA relate to client segmentation (Section 5.1.1.2.1), rules of conduct (Section 5.1.1.2.2), organisation (Section 5.1.1.2.3), client advisers (Section 5.1.1.2.4), the ombudsman scheme (Section 5.1.1.2.5) and prospectuses (Section 5.1.1.2.6).

5.1.1.2.1 Client Segmentation – Retail / Professional / Institutional

If a FinTech company qualifies as a Financial Service Provider, it must allocate each of its clients – as part of the onboarding process – to one of the following client segments: retail, professional or institutional:[10]

1. *Retail Clients*, also referred to as private clients, are all clients that do not qualify as Professional Clients (as defined below).

2. *Professional Clients* are: (a) financial intermediaries licensed under the Swiss Banking Act, the Swiss Financial Institutions Act or the Swiss Collective Investment Schemes Act; (b) insurance companies licensed under the Swiss Insurance Supervision Act; (c) foreign clients subject to prudential supervision equivalent to the financial intermediaries and insurance companies within the meaning of let. (a) and let. (b); (d) central banks; (e) public entities with professional treasury operations; (f) occupational pension schemes, and other institutions whose purpose is to serve occupational pensions, with professional treasury operations; (g) companies with professional treasury operations; (h) large companies (companies which exceed two of the following parameters: (1) balance sheet total of CHF 20 million, (2) turnover of CHF 40 million and (3) equity of CHF 2 million); and (i) private investment structures with professional treasury operations created for high-net-worth Retail Clients.

3. *Institutional Clients* are Professional Clients as defined in 2. (a)-(d) above, as well as national and supranational public entities with professional treasury operations.

Depending on the client segment, different duties and hence different levels of "client protection" will apply. Consequently, in order to limit the impacts of FinSA, a FinTech company may opt to restrict its offering to Professional Clients and / or Institutional Clients.

Certain clients may declare that they waive certain client protection provisions (so-called "opting out"), whereas certain other client types may declare that they want to benefit from a higher level of protection (so-called "opting in").[11] Any such declaration to "opt-out" or "opt-in" must be in writing (e.g., a physical letter) or in another manner verifiable by text (e.g., an email or WhatsApp message).[12]

5.1.1.2.2 Rules of Conduct

The FinSA sets out rules of conduct, which namely cover A) information duties, B) suitability and appropriateness checks, C) documentation and accountability duties as well as D) duties regarding transparency and due care.

A) Information Duties
The information duties aim at providing clients a comprehensive and transparent overview of the services and products offered by the Financial Service Provider. There are general and specific duties and information may be provided either in writing or electronically, e.g., via a website. If provided electronically, it must be ensured that clients can at all times access, download and save such information to a durable medium (e.g., a hard disk).[13]

[9] Article 2 para. 2 FinSO.
[10] Article 4 FinSA.
[11] Article 5 FinSA.
[12] Article 5 para. 8 FinSA.
[13] Article 9 para. 3 FinSA and article 12 FinSO.

Depending on the respective client segmentation, the following will apply:

1. In constellations in which Financial Services are provided to Retail Clients, the information duties apply to the full extent.

2. Professional Clients, on the other hand, may waive the *general* information duties.[14]

3. In constellations in which Financial Services are provided to Institutional Clients, the information duties set out under FinSA are not applicable.[15]

B) Suitability and Appropriateness
If a FinTech company provides portfolio management services or renders investment advice, it must meet the appropriateness or suitability test requirements set out under FinSA, also if such services are (in whole or in part) provided through an automated or semi-automated "robo-advice" system.

1. *Suitability*: When providing portfolio management services or rendering investment advice under consideration of the client's entire portfolio (so-called "Portfolio-Related Investment Advice"), a Financial Service Provider must enquire about the relevant client's financial situation and investment objectives as well as its knowledge and experience and must based on such information assess whether the investment in question is suitable for such client.[16]

2. *Appropriateness*: When rendering investment advice for individual transactions without taking into account the client's entire portfolio (so-called "Transaction-Related Investment Advice"), a Financial Service Provider must obtain information on the client's knowledge and experience and must based on such information assess whether the investment in question is appropriate for such client.[17]

3. *Execution-only*: If a Financial Service Provider is only involved in the mere execution or transmission of a client order, the Financial Service Provider is not required to conduct such suitability or appropriateness checks.[18] Nevertheless, prior to providing mere execution or transmission services, the client needs to be informed that no appropriateness or suitability checks will be performed.[19]

In constellations in which the relevant Financial Services are provided to Retail Clients, the duties outlined above apply to the full extent. With regard to Professional Clients, certain alleviations are set out under FinSA: a Financial Service Provider may, unless there are indications to the contrary, in particular, assume that Professional Clients have sufficient knowledge and experience as well as the capacity to bear the risks underlying the Financial Service in question when conducting the suitability and appropriateness checks.[20] For Institutional Clients, FinSA provides for a blanket non-application of the information duties.[21]

C) Documentation and Accountability Duties
FinSA namely requires Financial Service Providers to record and document (i) the information collected from the client and the services provided in Switzerland or to clients in Switzerland as well as (ii) the results of suitability and appropriateness assessments.[22] Generally, Financial Service Providers are free to decide on how they organise such documentation, and purely digital solutions are possible.[23] In any case, a Financial Service Provider must be in a position to render account to a client within, as a rule, ten business days after a client requested to obtain his / her files. Furthermore, the relevant records and documents must be stored for at least ten years.[24]

If Retail Clients are involved, the duties concerning documentation and accountability apply to the full extent. Professional Clients may declare that he / she waives his / her rights under the documentation.[25] For Institutional Clients, the FinSA provides for a blanket non-application of the information duties.[26]

[14] Article 20 para. 2 FinSA.
[15] Article 20 para. 1 FinSA.
[16] Article 12 FinSA.
[17] Article 11 FinSA.
[18] Article 13 para. 1 FinSA.
[19] Article 13 para. 2 FinSA.
[20] Article 13 para. 3 FinSA.
[21] Article 20 para. 1 FinSA.
[22] Article 15 para. 1 FinSA; Dispatch FinSA I FinIA, 8959. Cf. article 25 paras. 5 et seqq. MiFID II.
[23] Dispatch FinSA I FinIA, 8959 et seq.; Pre-consultation report FinSO, 27.
[24] Article 18 FinSO; Dispatch FinSA I FinIA, 8959 et seq.
[25] Article 20 para. 2 FinSA.
[26] Article 20 para. 1 FinSA.

D) Transparency and Due Care
Financial Service Providers must implement systems and procedures that are appropriate with regard to their size, complexity and business activities and ensure the protection of clients' interests and the equal treatment of their clients when executing transaction orders. In particular, they must ensure (i) that client orders are registered and allocated promptly and correctly, (ii) that comparable orders are executed in the order in which they were received, unless this is not in the client's interest or not possible due to the nature of the client's order or the market conditions, (iii) that in case orders are pooled, the interests of the clients involved are safeguarded and (iv) that Retail Clients are informed of any material difficulties which could affect the correct execution of their orders.[27]

Financial Service Providers must ensure the best execution of client orders in terms of cost (taking into account, *inter alia*, any inducements provided by third parties), timing and quality. In order to satisfy the best execution requirement, Financial Service Providers must define and annually review the criteria necessary for the selection of the execution venue (in particular, the price, costs, efficiency and probability of the execution and settlement) and implement appropriate internal directives.[28]

If Retail Clients or Professional Clients are involved, the duties concerning transparency and due care apply to the full extent. For Institutional Clients, FinSA provides for a blanket non-application of the information duties.[29]

5.1.1.2.3 Organisational Requirements

Financial Service Providers must have adequate internal regulations and an appropriate organisation of operations in order to ensure compliance with all applicable duties under FinSA. They must namely (i) define and implement internal rules that are appropriate with respect to their size, complexity and legal form, as well as in relation the Financial Services they offer and the risks associated therewith; and (ii) select their employees carefully and ensure that they receive training in the rules of conduct as well as in the skills they need to carry out their specific tasks.[30] Furthermore, FinSA provides for organisational requirements with regard to outsourcing,[31] conflicts of interest,[32] payments from third parties ("inducements" or "kick-backs"),[33] and employee transactions.[34]

Whilst FinSA does not set-out an express exemption, it remains disputed in the relevant Swiss legal doctrine whether the organisational requirements set out under FinSA apply to Financial Service Providers providing their services to Swiss clients on a strict cross-border basis.

5.1.1.2.4 Client Advisers

FinSA makes a clear distinction between "Client Advisers" and "Financial Service Providers": Client Advisers are *natural persons* (i.e., not legal entities) that render Financial Services either on behalf of a Financial Service Provider or in their own capacity as a Financial Service Provider.

With regard to Client Adviser, the following aspects must be considered:

- *Knowledge and Expertise of Client Advisers*: If a FinTech company qualifies as a Financial Service Provider, its Client Advisers will need to possess the required knowledge with regard to the Swiss rules of conduct (see Section 5.1.1.2.2 above) and a level of expertise appropriate for their activities. If a foreign Financial Services Provider acts on a strict cross-border basis, such Swiss requirements regarding knowledge and expertise are, in our view, only applicable to Client Advisers that actually render Financial Services to Swiss-based clients. Nonetheless, most foreign Financial Service Providers will likely need to establish a "Swiss Desk", i.e., designate specific employees / Client Advisers that are familiar with the Swiss rules of conduct and meet all requirements set out under FinSA.

- *Client Adviser Register*: The following Client Advisers are required to be registered in the so-called Client Adviser Register (*Beraterregister*) in order to be permitted to carry out Financial Services in Switzerland: (i) Client Advisers of *Swiss* Financial Service Providers, which are not subject to prudential supervision (i.e., independent client advisers) and (ii) Client Advisers of *foreign* Financial Service

[27] Article 17 FinSA and article 20 FinSO.
[28] Article 18 FinSA and article 21 FinSO.
[29] Article 20 para. 1 FinSA.
[30] Article 21 et seq. FinSA and article 23 FinSO.
[31] Article 23 et seq. FinSA.
[32] Article 25 FinSA.
[33] Article 26 FinSA.
[34] Article 27 FinSA.

> Providers, which (aa) are not subject to prudential supervision abroad or (bb) provide Financial Services to Swiss-based Retail Clients.[35]

Persons having only very limited contact with clients or potential investors do not qualify as Client Advisers and are thus not subject to the requirements regarding knowledge and expertise as well as the Client Adviser Register. The same applies to employees of a Financial Service Providers that merely support the provision of Financial Services. Examples of such supporting activities include, *inter alia*, the dispatch of product documentation following the expression of interest by a client, the arrangement of meetings with his / her Client Adviser or the support of technical procedures with respect to electronic customer portals or websites of a Financial Service Provider.

5.1.1.2.5 Ombudsman Scheme

Financial Service Providers are required to accede to the Swiss ombudsman scheme.[36]

5.1.1.2.6 Prospectus Requirements

FinSA sets-out a comprehensive prospectus regime, which *inter alia* provides for an ex-ante approval requirement for prospectuses if Financial Instruments are publicly offered or admitted to trading in Switzerland. To date BX Swiss AG and SIX Exchange Regulation AG have been approved by *FINMA* as Reviewing Bodies, tasked with the review and approval of prospectuses.

In principle, the requirement to publish an approved prospectus applies to all public offerings in or into Switzerland and to all securities (incl. DLT securities) that are to be admitted to trading on a trading venue (see Section 5.2.2.2 below) or a DLT trading facility (see Section 5.3.2.2 below) in Switzerland.[37] However, FinSA contains a number of exemptions and there is for example no requirement to prepare a prospectus to the extent the public offer is addressed exclusively at Professional Investors or if it is directed at fewer than 500 retail investors.

Under FinSA, an offer is any invitation to purchase a Financial Instrument, if such invitation contains sufficient information on the terms and conditions of the offer and the Financial Instrument itself.[38] Therefore, FinTech companies providing information relating to Financial Instruments on an internet-based platform must in particular take into account the following:

- The mere publication of information relating to Financial Instruments on a platform in itself should not *per se* be regarded as an offer but the manner in which access to the platform is structured will be decisive.

- If information on the Financial Instrument can only be accessed by the interested client / investor on an internet-based platform via a search entry (e.g., when searching for ISIN / Valor or product name), no offer within the meaning of FinSA will be deemed to have been made by the FinTech company operating such internet-based platform. The result of the search should not have any other legal consequences than an (oral or written) information on a financial instrument at the request of an interested investor.

- Also, if the client / investor must first log in with his / her password on an internet-based platform, it can be argued that no offer will be made by the FinTech company operating such internet-based platform.

- However, it must be noted that in both scenarios mentioned above, a reverse solicitation constellation will only be at hand if no advertising by the "provider" or one of its representatives in relation to the specific Financial Instrument preceded the actions of the investor.[39]

5.1.2 Financial Institutions Act (FinIA)

FinIA sets out a comprehensive licensing regime for financial institutions. *Financial Institutions* within the meaning of FinIA are: (1) portfolio managers; (2) trustees; (3) managers of collective assets; (4) fund management companies and (5) securities firms (formerly securities dealers).

[35] Client Advisers of foreign Financial Service Providers that are subject to prudential supervision abroad are exempted from this registration requirement to the extent that their activities in Switzerland are directed exclusively at Institutional Clients and / or Professional Clients (Article 31 FinSO).

[36] Article 77 FinSA.

[37] Article 35 FinSA.

[38] Article 3 let. g FinSA.

[39] Article 3 para. 6 let. a FinSO.

Instead of a sectorial approach, FinIA provides for a "pyramid approach", implementing a rather light touch regulation for portfolio managers and trustees and increasingly stricter regimes for managers of collective assets, fund management companies and securities firms.

FinIA defines common core requirements that must be met by all Financial Institutions. All Financial Institutions regulated under FinIA must for example implement an appropriate organisation (risk management, effective internal control system, etc.) and must be effectively managed in Switzerland. Furthermore, both the Financial Institution itself as well as the persons in charge of their administration and management must meet the regulatory fit and proper test and must therefore have a good reputation and ensure proper business conduct.

For FinTech companies, the key aspects of FinIA are the following:

- *Portfolio managers* (e.g., independent external asset managers) are subject to prudential supervision. Such supervision will be conducted by an independent supervisory organisation (*Aufsichtsorganisation*) that itself will be licensed by *FINMA* for this purpose. In July 2020 *FINMA* authorised the first supervisory organisations for portfolio managers.[40]

- *Securities firms* require a license from *FINMA* and are subject to supervision as well as a series of specific regulations. A FinTech company will qualify as a securities firm within the meaning of FinIA if it engages, on a commercial basis, in either (a) dealing in securities in its own name but for its clients' account, or (b) short-term transactions in securities for its own account and either thereby potentially affects systemic stability of the Swiss financial market, acts as a participant on a trading venue or operates as an organised trading facility, or (c) market making activities by engaging in short-term transactions in securities while setting public bid and ask prices (permanently or on request).[41] Depending on the relevant business model and activities, FinTech companies may in particular qualify as own-account dealers.

[40] See FINMA (online).

[41] Article 41 FinIA.

As far as regulatory licensing requirements are concerned, the Swiss regime is largely based on the so-called principle of territoriality (*Territorialitätsprinzip*). Therefore, as long as a FinTech company is domiciled abroad and provides Financial Services into Switzerland on a strict cross-border basis, i.e., without establishing a physical presence in Switzerland, such activities (with a few exceptions) will not trigger Swiss regulatory licensing requirements under FinIA. Such activities may, however, be subject to the requirements under FinSA (see Section 5.1.1 above).

5.2. Other Key Regulation

This subchapter outlines key elements of the Swiss FinTech Specific Regulation (Section 5.2.1) and provides an overview on select Swiss federal laws (Section 5.2.2), which may – besides FinSA and FinIA (see Section 5.1 above) – be applicable to FinTech related activities.

5.2.1 FinTech Specific Regulation

The Swiss FinTech specific regulation comprises three "pillars": the so-called FinTech license (Section 5.2.1.1), a regulatory innovation area ("sandbox") (Section 5.2.1.2) and the settlement accounts exemption (Section 5.2.1.3).

5.2.1.1 FinTech License

Since 1 January 2019 the Swiss Banking Act ("BA") provides for two licensing categories (i) the regular banking license and (ii) the FinTech license pursuant to Article 1b BA, (also referred to as "banking license light").

Prior to the FinTech license being introduced, only formally licensed banks were permitted to (i) accept deposits from the public on a professional basis or to (ii) recommend themselves for such deposit taking activities. Given that as a general rule all repayment-liabilities vis-à-vis clients qualify as *deposits* and since accepting deposits from more than 20 persons will qualify as acting on a *professional basis* (see Section 5.2.2.1 below), certain business models of FinTech companies would have required a regular banking license under the BA.

With the FinTech license, companies not engaging in the classic banking business (interest rate differential business; *Zinsdifferenzgeschäft*), e.g., by using short-term deposits for long-term lending or investment activities, now have a viable regulatory alternative. The FinTech license

is attractive for companies that are mainly active in the financial sector, but which (i) limit their operations to accepting either deposits of less than CHF 100 million or crypto assets (*kryptobasierte Vermögenswerte*)[42] and which (ii) do not invest the accepted funds nor pay interest thereon. Hence, the license may for example be attractive for companies offering payment services or platform funding services.

However, there are a number of aspects that have to be taken into account when considering applying for a FinTech license. In order to obtain the license from *FINMA*, the company must go through a rather lengthy (depending in particular on the complexity of the business model and the quality of the license application) licensing procedure[43], which is, however, less burdensome than the licensing procedure for a regular banking license. In this process, the company will namely be required to evidence that it meets requirements regarding (i) organisation and financial and regulatory audits, (ii) corporate governance (the board of directors must for example consist of at least three persons) and (iii) capital (e.g., minimum capital of 3 percent of the deposits accepted from the public, i.e., up to CHF 3 million, but at least CHF 300,000).

Furthermore, once the FinTech license has been granted by *FINMA*, any deposits or crypto assets held by the company must be either (i) segregated from the assets of the company or (ii) recorded in the company's books in such a manner that they can be shown separately from the company's own funds at any time (if the company opts for the latter option, a more comprehensive audit is required).[44]

If the maximum deposit threshold of CHF 100 million is exceeded, the company must notify *FINMA* within 10 days and must submit a regular bank license application within 90 days.[45]

Finally, holders of a FinTech license are required to comprehensively inform their clients about the risks of their business model, their services and the utilised technologies. Furthermore, the company's clients must be informed that their deposits with the company are not protected by the Swiss deposit insurance regime (*Einlegerschutz*). Solely mentioning this information in general terms and conditions is insufficient and if the information is made available electronically, it must be ensured that clients may at any time view, download and save such information. Also, the information must be made available *prior* to entering into the agreement with the client and the client must have had enough time to understand the information prior to concluding the contract.[46]

5.2.1.2 "Sandbox"

The "sandbox" exemption allows engaging in activities which under former regulation would have triggered bank licensing requirements. Companies accepting deposits from the public are deemed *not* to be acting on a commercial basis, provided:

(i) the deposits or crypto assets accepted do not exceed the threshold of CHF 1 million;

(ii) the company does not engage in the interest rate difference business (*Zinsdifferenzgeschäft*); and

(iii) the clients are informed prior to depositing the funds that the company accepting the funds is not supervised by *FINMA* and that the funds are not protected by the Swiss deposit insurance regime.[47]

Under the current regulation, it is allowed to invest the deposits accepted, provided that the threshold of CHF 1 million is not exceeded and that the company does not engage in the interest rate difference business.

If the deposit or crypto asset threshold of CHF 1 million is exceeded, the company must notify *FINMA* within 10 days and must – in each case depending on the respective activities – either submit a regular bank license application or a FinTech-license application within 30 days. During the interim period between the filing of the license application and *FINMA's* decision on the request, the other conditions still must be met, i.e., no interest may be paid on such deposits and the information duties vis-à-vis depositors must be satisfied. Also, *FINMA* may on a case-by-case basis decide that no further deposits may be accepted until the end of the license application process.[48]

[42] In the sense of article 5a BO.

[43] See the FINMA guidelines for FinTech licence applications (FINMA, 2018a) (version of 2 August 2021), which are available in German, French as well as English.

[44] Article 14f BO.

[45] Article 1b para. 6 BA.

[46] Article 7a BO.

[47] Article 6 para. 2 BO.

[48] Article 6 para. 4 BO.

If the company decides to satisfy its regulatory disclosure obligations relating to its supervisory status and the deposit protection via its website, certain additional requirements must be met. First, the information must be displayed separately from other information. Therefore, solely mentioning it in general terms and conditions is insufficient. Second, this information must be displayed in text and in reproducible form. Third, the company's customers need to expressly confirm that they took note of the information.

The "sandbox" exemption is designed to create a regulatory safe harbour, in which FinTech companies are able to test their business ideas and provide certain financial services without becoming a regulated entity under Swiss banking regulation. However, it must be noted that companies engaging in activities within the "sandbox" are still likely to be subject to Swiss anti-money laundering regulations (see Section 5.2.2.4 below) and may therefore nonetheless need to adhere to certain regulatory requirements under Swiss law. Therefore, the "sandbox" should not be misunderstood as a "regulation free" area.

5.2.1.3 Settlement Accounts Exemption

Funds held in customer accounts of securities firms, DLT trading facilities, precious metal dealers, portfolio managers or similar companies which exclusively serve the purpose of settling customer transactions do not qualify as deposits within the meaning of the BA and therefore do not trigger bank licensing requirements, provided the funds are not interest-bearing and are forwarded within 60 days. The exemption, in particular, facilitates the operation of funding platforms.

5.2.2 Selected Federal Laws

The Swiss regulatory framework relevant for FinTech companies also includes, in addition to the FinSA (see Section 5.1.1 above) and FinIA (see Section 5.1.2 above), in particular, the following federal laws and their implementing ordinances:

- the *Banking Act* ("BA"), which regulates banking activities / deposit taking as well as the supervision of banks and of holders of FinTech licenses (see Section 5.2.1.1 above and the deep dive on stable coins on page 56);
- the *Financial Market Infrastructure Act* ("FMIA"), which governs the organisation, supervision and operation of financial market infrastructures (*inter alia*, trading venues and payment systems) and the conduct of financial market participants in securities and derivatives trading;
- the *Anti-Money Laundering Act* ("AMLA"), which regulates the prevention of money laundering and terrorist financing and the due diligence in financial relationships and transactions;
- the *Consumer Credit Act* ("CCA"), which governs consumer credits, i.e., loans granted on a professional basis to individuals for purposes other than business or commercial activities; and
- the *Collective Investment Schemes Act* ("CISA"), which on a product level governs the licensing and supervision of collective investment funds in Switzerland, including the approval requirements and process for the offering of non-Swiss collective investment funds in Switzerland.

The following sub-chapters provide a high-level overview of this regulatory framework applicable to banks (Section 5.2.2.1), trading facilities (Section 5.2.2.2), payment systems (Section 5.2.2.3), anti-money laundering (Section 5.2.2.4), consumer credits (Section 5.2.2.5) and collective investment schemes (Section 5.2.2.6).

5.2.2.1 Banks

In Switzerland, only licensed banks and holders of FinTech licenses (see Section 5.2.1.1 above) are permitted to accept deposits from the public on a professional basis or to recommend themselves for such deposit taking activities.[49] Furthermore, only licensed banks (not holders of a FinTech license) may use or refer to the term "bank" or "banker" in their company name, their company purpose or in their corporate and marketing documentation.[50] Any unauthorised acceptance of deposits or advertising of such services may be subject to criminal sanctions.[51]

[49] Articles 1a and 1b BA.
[50] Article 1 para. 4 BA.
[51] Articles 46 and 49 BA; Article 44 FINMASA.

Generally, a company is considered to be a bank, if it[52]:

(i) is mainly active in the financial sector; and

(ii) accepts deposits from the public in an amount *higher* than CHF 100 million on a professional basis or recommends itself publicly for such deposit taking activities[53]; or accepts deposits from the public in an amount of *up to* CHF 100 million on a professional basis or recommends itself publicly for this purpose and reinvests these deposits or pays interest thereon.[54]

A company is considered to be *active in the financial sector* if it renders or procures financial services, in particular, by engaging in the deposit taking or lending business, securities trading, investment or portfolio management or accepting crypto assets for itself or for third parties.[55] Deposit taking is generally deemed to be performed on a professional basis (see "sandbox" exemption; Section 5.2.1.2 above), if an individual or legal entity (a) continuously accepts more than 20 deposits from the public or crypto assets in collective custody or (b) recommends itself publicly for such deposit or crypto asset taking activities (regardless of whether the company actually continuously holds more than 20 deposits from the public or crypto assets or not).[56]

Generally, all repayment-*liabilities* via-à-vis clients qualify as deposits within the meaning of the BA (see deep dive on stable coins on page 56).[57] There are, however, a number of exemptions. Amongst others, the following liabilities do not qualify as deposits:[58]

- funds provided in consideration of a contract providing for the transfer of property or the rendering of a service (e.g., prepayments that form part of the consideration for a purchase agreement are exempt, but granting a loan with a duty to repay is not exempt);
- funds which are transferred as a security;
- credit balances on client accounts of securities firms, DLT trading facilities, precious metal dealers, portfolio managers or similar companies which solely serve the purpose of the settlement of client transactions, provided no interest is paid on these funds and provided they are forwarded within 60 days;
- funds that to a small extent are transferred to a payment instrument or a payment system and that are exclusively used for future purchases of goods or services, provided no interest is paid on these funds;
- funds benefitting from a default guarantee granted by a Swiss licensed bank (see deep dive on stable coins on page 56); and
- bonds and other debt instruments that are standardised and issued *en masse* or uncertificated rights with the same function (book-entry securities) if, at the time of the offer, investors are informed in publicly available document form[59] about (1) the name, registered office and the purpose of the issuer as set out in a brief description, (2) the interest rate, issue price, subscription period, payment date, maturity and redemption terms, (3) the most recent annual financial statements and consolidated financial statements together with the audit report and, if more than six months have passed since the balance sheet date, the interim financial statements, if any, of the issuer and the guarantor, (4) the collateral provided and (5) the representation of bondholders, insofar as this is included in the investment conditions.

Furthermore, the following deposits are *not* considered to be deposits *from the public*:[60]

[52] Companies are also considered to be banks if they refinance themselves significantly with loans from several banks that do not own any qualified / significant shareholdings in them in order to finance any number of persons or companies with which they do not form an economic unit of their own and in any manner possible; see article 1a let. c BA.

[53] Article 1a let. a BA.

[54] Article 1a let. b BA.

[55] Article 4 para. 1 let. a BO. Furthermore, holding companies owning predominantly participations in companies active in the financial sector are themselves considered active in the financial sector; article 4 para. 1 let. b BO. Finally, significant group companies (Wesentliche Gruppengesellschaften) as defined in article 3a BO are deemed to be active in the financial sector too; article 4 para. 1 let. c BO.

[56] Article 6 para. 1 BO.

[57] Article 5 para. 1 BO; FINMA-Circular 2008/3, para. 10.

[58] Article 5 para. 3 BO.

[59] See article 64 para. 3 FinSA. E.g., electronically via the issuer's website.

[60] Article 5 para. 2 BO.

- deposits from domestic and foreign banks or other companies under regulatory supervision;
- deposits from qualified shareholders (owning more than 10 % of the share capital or the voting rights) of the debtor and any parties affiliated or related with such shareholders; and
- deposits from institutional investors with professional treasury operations.

Activities of FinTech companies may include regulated deposit taking within the meaning of the BA (e.g., if a FinTech company accepts funds from investors and subsequently transfers funds to its clients). In order to reduce the risk of becoming subject to a licensing requirement under the BA:

- FinTech companies may decide to refrain from accepting any third party funds in the first place.
- If deposits are involved, the FinTech company may want to stay within the scope of application of the "sandbox" exemption (see Section 5.2.1.2 above) or it may want to avoid accepting more than 20 deposits from the public or crypto assets in collective custody and refrain from recommending itself publicly for this purpose.[61]
- If deposits are involved, the FinTech company can try to ensure that only exempt liabilities are accepted. This would, for example, be the case if credit balances on client accounts solely serve the purpose of the settlement of client transactions and if no interest is paid on these funds.[62]
- FinTech companies can also decide to issue bonds or other debt instruments and, at the time of the offer, to inform investors in compliance with article 5 para. 3 let. b BO as well as article 64 para. 3 FinSA (see above).
- Finally, FinTech companies can consider obtaining a FinTech license (see Section 5.2.1.1 above), which allows them to accept deposits from the public up to CHF 100 million and crypto assets.

5.2.2.2 Trading Facilities

Trading venues, i.e., stock exchanges and multilateral trading facilities, are regulated financial market infrastructures under FMIA.[63] They require a license from *FINMA*[64] and are subject to a series of specific regulations.

- A stock exchange is an institution for multilateral securities trading *where securities are listed* and whose purpose is the simultaneous exchange of bids between several participants and the conclusion of contracts based on non-discretionary rules.[65]
- A multilateral trading facility is an institution for multilateral securities trading whose purpose is the simultaneous exchange of bids between several participants and the conclusion of contracts based on non-discretionary rules *without listing securities*.[66]

Under Swiss law, "securities" (*Effekten*) are instruments, which are:

(i) standardised;

(ii) suitable for mass trading and;

(iii) either certificated securities (*Wertpapiere*), uncertificated securities (*einfache Wertrechte*), ledger-based securities (*Registerwertrechte*), derivatives[67] or intermediated securities (*Bucheffekten*).[68]

Typical examples of securities include not only shares, bonds, notes and other debt instruments, but may for example also include participations and / or sub-participations in a loan if such participations and / or sub-participations are standardised and suitable for mass trading.

[61] Whether for example the mere publication of credit requests via crowdlending platforms constitutes a public recommendation to accept deposits is still open. To our knowledge, FINMA does not seem to be interpreting the law this way.

[62] Article 5 para. 3 let. c BO; See also the FINMA Fact sheet Crowdfunding (2020).

[63] Article 2 let. a sec. 1 and 2 FMIA.

[64] Article 4 para. 1 FMIA.

[65] Article 26 let. b FMIA.

[66] Article 26 let. c FMIA.

[67] Derivatives are "financial contracts whose value depends on one or several underlying assets and which are not cash transactions". See article 2 let. c FMIA and article 2 paras. 2 to 4 of the Financial Market Infrastructure Ordinance ("FMIO").

[68] Article 2 let. b FMIA and article 3 let. b FinSA.

An instrument is deemed to be standardised and suitable for mass trading if it is (a) either publicly offered and has the same structure (interest, maturity) and denomination (amount) or (b) if it is placed with more than 20 investors and has not been specifically created for a particular counterparty / investor.[69] It is important to note that not only listed instruments but also unlisted instruments qualify as securities.

Even if no securities are traded, an institution or trading platform can still qualify as a so-called organised trading facility ("OTF"). OTFs[70] within the meaning of FMIA are establishments for:

- multilateral trading in securities or other financial instruments whose purpose is the exchange of bids and the conclusion of contracts based on discretionary rules;
- multilateral trading in financial instruments other than securities whose purpose is the exchange of bids and the conclusion of contracts based on non-discretionary rules;[71] and
- bilateral trading in securities or other financial instruments whose purpose is the exchange of bids.

FinTech companies operating a platform that allows for trading of shares, standardised debt instruments or other financial instruments, including securities issued in the form of tokens (see Section 5.3 below), may qualify as regulated trading venues. Should a particular business model include such activities, the main question will often be whether the relevant FinTech company qualifies as an MTF (if securities are involved) or as an OTF, and hence requires a license as a bank, securities firm, DLT trading facility or trading venue.[72]

5.2.2.3 Payment Systems

Payment systems are regulated financial market infrastructures under FMIA.[73] A payment system is "an entity that clears and settles payment obligations based on uniform rules and procedures".[74]

Specific duties of payment systems (e.g., regarding settlement and liquidity) have been set out in the implementing ordinance of the FMIA.[75] A payment system requires a license from *FINMA*[76] if (a) this is necessary for the proper functioning of the financial market or the protection of financial market participants and (b) if the payment system is not operated by a bank.

Operating a payment system may involve deposit taking. However, there is a "safe harbour rule"[77] which may be applicable to FinTech companies in this context. Funds that to a small extent are transferred into a payment instrument or a payment system and that are exclusively being used for future purchases of goods or services may not qualify as deposits, provided no interest is paid thereon. The following requirements must be met:[78]

(i) the funds may only be used for future purchases of goods or services;

(ii) the maximum account balance per customer may not exceed CHF 3,000 at any time; and

(iii) no interest may be paid thereon.

If these requirements are met, the liabilities involved do not qualify as deposits and hence no banking license is required.

5.2.2.4 Anti-Money Laundering

Ensuring compliance with anti-money laundering regulation, i.e., the Anti-Money Laundering Act ("AMLA") and implementing regulations, often constitutes one of the key regulatory challenges for FinTech companies, both from an organisational and financial perspective. Swiss anti-money laundering regulation is based on three key elements:

- supervision of financial intermediaries either directly by *FINMA* or by self-regulatory organisations, which are themselves *FINMA*-supervised;

[69] See article 2 para. 1 FMIO.

[70] Article 42 FMIA.

[71] The term "non-discretionary rules" means that the operator of the trading facility has no discretion as to how interests may interact. Hence, the operator of the trading facility does not have discretion over how a transaction is to be executed.

[72] Article 43 para. 1 FMIA.

[73] Article 2 let. a sec. 6 FMIA.

[74] Article 81 FMIA.

[75] Article 82 FMIA i.c.w. article 66 et seqq. FMIO.

[76] Article 4 para. 2 FMIA.

[77] Article 5 para. 3 let. e BO.

[78] FINMA-Circular 2008/3, para. 18.1.

- due diligence, reporting, identification and record-keeping requirements applying to all financial intermediaries; and

- sanctions in case of non-compliance.

Article 305bis of the Swiss Criminal Code ("SCC") contains the criminal provision that prohibits all forms of money laundering. It stipulates that "any person that carries out an act that is aimed at preventing the identification of the origin, the tracing or the forfeiture of assets which he knows or must assume originate from a felony or aggravated tax misdemeanour is liable to a custodial sentence not exceeding three years or to a monetary penalty".

Financial intermediaries are divided into two groups:

- Financial intermediaries belonging to the "*banking sector*" if they are subject to comprehensive, prudential regulation under special legislation covering the whole range of their activities. Under these specific laws, a financial intermediary is supervised by the appropriate regulatory authority designated in each of these laws. Such financial intermediaries are for example banks, holders of a FinTech license, portfolio managers, trustees, securities firms, DLT trading facilities, insurance companies or licensed payment systems.[79]

- Financial intermediaries belonging to the "*non-banking sector*" if they "on a professional basis accept or hold on deposit assets belonging to third parties or assist in the investment or transfer of such assets".[80] This definition covers, in particular, persons who: (i) carry out credit transactions (in particular in relation to consumer loans or mortgages, factoring, commercial financing or financial leasing), (ii) provide services related to payment transactions, in particular by executing electronic transfers on behalf of other persons, or who issue or manage means of payment such as credit cards, (iii) trade for their own account or for the account of others in banknotes and coins, money market instruments, foreign exchange, precious metals, commodities and securities (stocks and shares and value rights) as well as derivatives relating thereto, (iv) make investments as investment advisers or (v) hold securities on deposit or manage securities.[81] Before engaging in business activities, such financial intermediaries must join a self-regulatory organisation recognised by *FINMA*.[82]

Many activities typically conducted by FinTech companies, as for example business models involving holding or depositing assets on behalf of clients or issuing of stable coins (see deep dive on stable coins on page 56), are subject to the anti-money laundering regulation. FinTech companies should namely take into account that the assistance provided in connection with the transfer of virtual currencies are services related to payment transactions subject to AMLA, if such services are provided in the context of a permanent business relationship. In principle, there are four approaches for FinTech companies to ensure compliance with anti-money laundering laws:

(i) they can completely refrain from financial intermediation activities;

(ii) they can cooperate with a regulated financial intermediary, such as a bank, as far as financial intermediation activities are required;

(iii) they can join a self-regulatory organisation and comply with anti-money laundering regulations; or

(iv) if they are financial intermediaries belonging to the "*non-banking sector*"[83], they can structure their business model in such way that they provide their services only to financial intermediaries belonging to the "*banking sector*"[84] or to foreign financial intermediaries that are subject to equivalent supervision.

Apart from a limited number of exceptions[85], all *professional* financial intermediaries are subject to the AMLA and the requirements set-out thereunder. A financial intermediary is generally deemed to be engaging in financial intermediation on a professional basis if:[86]

[79] Article 2 para. 2 AMLA.

[80] Article 2 para. 3 AMLA.

[81] The Anti-Money Laundering Ordinance ("AMLO") and FINMA-Circular 2011/1 set out further details as to when the professional practice of financial intermediation is subject to supervision.

[82] Article 14 para. 1 AMLA.

[83] Article 2 para. 3 AMLA.

[84] Article 2 para. 2 AMLA.

[85] Article 2 para. 4 AMLA.

[86] Article 7 para. 1 AMLO.

- its activity generates a gross revenue of more than CHF 50,000 per calendar year;
- it enters into business relationships with more than 20 contracting parties per calendar year that are not limited to a one-time activity or if it maintains at least 20 such relationships per calendar year;
- it has unlimited power to dispose over assets belonging to others exceeding CHF 5 million at any point in time; or
- it executes transactions of a total volume exceeding CHF 2 million per calendar year.

The financial intermediaries' duties are set out under AMLA[87] and the implementing ordinances and regulations.[88] The key duties are:

- duty to personally identify the client, i.e., the contracting party;
- duty to identify the beneficial owner / economic beneficiary of the assets;[89]
- duty to re-identify the beneficial owner / economic beneficiary of the assets in certain circumstances;
- specific clarification / verification duties amongst others with regard to transactions or business relationships with heightened risks;
- duties relating to documentation of transactions and verifications as well as relating to record keeping;
- duty to implement organisational measures, e.g., regarding training of employees and controls; and
- duty to report cases of suspicions of money laundering to the *Money Laundering Reporting Office Switzerland* ("MROS").

[87] See article 3 et seqq. AMLA.

[88] The agreement relating to the Swiss banks' code of conduct with regard to the exercise of due diligence (VSB 16) is of particular importance. It contains a detailed set of rules in connection with the identification of clients and beneficial owners.

[89] Pursuant to the revised AMLA (that is expected to enter into force mid 2022) the financial intermediary will not only have to establish the identity but also have to verify the identity of the beneficial owner (article 4 para. 1 revised AMLA).

Under certain circumstances and provided that specific requirements are met reduced duties may apply.

5.2.2.5 Consumer Credits

The Consumer Credit Act ("CCA") applies to consumer credits, i.e., loans granted to individuals on a professional basis for purposes other than business or commercial activities. Further, loans granted on a non-professional basis are subject to the CCA, provided they are granted in cooperation with a crowdlending broker (*Schwarmkredit-Vermittler*), e.g., an operator of a crowdlending platform.[90]

Therefore, FinTech companies may be subject to the regulations relating to consumer credits. The following duties / rights under the CCA may be of particular importance:

- duty to obtain a license in order to be permitted to grant or broker loans to consumers on a professional basis;[91]
- restrictions relating to the advertisement for consumer credits;[92]
- requirements regarding the form and content of consumer credit agreements;[93]
- duty not to exceed the maximum effective annual interest rate set by the *Swiss Federal Council*;[94] and
- duty to assess the consumer's creditworthiness[95] as well as the right to access the information made available by the Credit Information Office (*Informationsstelle für Konsumkredit*).[96]

FinTech companies should take into account that the CCA applies to all consumer credits granted to consumers domiciled in Switzerland, irrespective of whether the lender and/or lending platform has a physical presence in Switzerland. The CCA provides for significant sanctions in case of a breach, namely a loss of the claim to interest payments and repayment claim in case of a serious violation of the duty to conduct credit-checks.

[90] Article 2 let. b CCA.

[91] Article 39 CCA.

[92] Article 36 et seqq. CCA.

[93] Article 9 et seqq. CCA.

[94] Article 14 CCA.

[95] Article 22 CCA, article 28 et seqq. CCA.

[96] Article 23 et seqq. CCA.

5.2.2.6 Collective Investment Schemes

Collective investment schemes are "funds raised from investors for the purpose of collective investment, and which are managed for the account of such investors".[97] Generally, collective investment schemes regulation must be considered whenever a particular business model of a FinTech company entails the pooling of funds or risks in connection with an investment.

An entity or a financial product qualifies as a collective investment scheme if the following criteria are met: (1) funds (2) that are raised from (more than one) investors (3) for the purpose of being collectively managed (4) for the account of such investors, (5) whereby the investors' investment needs are met on an equal basis.

The licensing requirements as well as the supervision of fund management companies and managers of collective assets is governed by FinIA. Furthermore, the rules regarding the acquisition or disposal of units in collective investment schemes as well as the offering of such financial instruments will, subject to phase-in periods, be governed by FinSA. It must be noted, however, that units in collective investment schemes are the only Financial Instrument covered by the FinSA that will be subject to additional product-specific supervisory rules under CISA.

5.3. DLT and Blockchain – Swiss Regulatory Framework

Recently, Switzerland saw remarkable developments in distributed ledger technology ("DLT") and blockchain related business activities:

- In August 2018, *FINMA* granted the first asset manager of collective investment schemes license to a company focusing on investment management in the area of crypto assets (*Crypto Fund AG*).
- 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* (f.k.a. *Amun AG*)).
- 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*).
- In October 2019, the *Swiss stock exchange SIX* announced a cooperation with the *Swiss National Bank*, which aims at exploring technological options to make *digital central bank money* available for the trading and settlement of tokenised assets.[98]
- In September 2021, *SIX Digital Exchange AG (SDX)*, an affiliate of the *Swiss securities exchange SIX Swiss Exchange*, formally received the regulatory approval as a central securities depository from *FINMA*, while the associated company *SDX Trading AG* was approved to act as a securities exchange.[99] The obtained licenses enabled *SDX* to go live with a "fully regulated, integrated trading, settlement, and custody infrastructure" based on the blockchain technology.[100]
- Later in September, *FINMA* has approved the first crypto fund (*Crypto Market Index Fund*) under Swiss law.[101]
- Finally, in November 2021, *SDX* was launched by issuing the world's first digital bond in a fully regulated environment.[102]

The attitude of Switzerland's federal government, the *Federal Council*, and *FINMA* towards developments such as DLT and blockchain remains positive. However, these novel technologies have paved the way for the emergence of Decentralised Finance (DeFi), which increasingly challenges the current financial market regulation - also in Switzerland.

In December 2018, the *Federal Council* published a detailed report covering the legal framework for DLT and blockchain in Switzerland. The report concluded that the existing Swiss legal framework is, in principle, "fit" for technical developments such as DLT and blockchain. Nonetheless, a need for selective improvements was identified.

Only a few months later, the *Federal Council* had an initial draft law prepared, which then went through a comprehensive public consultation process. Based on feedback received, the *Federal Council* published the finalised

[97] Article 7 CISA.

[98] See SIX Media Release of 8 October 2019 (SIX, 2019).

[99] See FINMA Press Release of 10 September 2021 (FINMA, 2021a).

[100] See SIX Media Release of 10 September 2021 (SIX, 2021a).

[101] See FINMA Press Release of 29 September 2021 (FINMA, 2021b).

[102] See SIX Media Release of 18 November 2021 (SIX, 2021b).

draft law concerning DLT and blockchain on 27 November 2019.

In September 2020, the draft of the DLT Law was approved by the *Swiss Parliament* and partly entered into force on 1 February 2021. The second part of the DLT Law as well as the associated blanket ordinance (DLT Ordinance) entered into force on 1 August 2021. The DLT Ordinance sets out the necessary adjustments to ten existing ordinances.

This subchapter first discusses certain aspects of the *FINMA* categorisation of tokens (Section 5.3.1). Then the cornerstones of the DLT Law are summarised (Section 5.3.2).

5.3.1 *FINMA* Categorisation of Tokens

A key element of the Swiss regulatory framework applicable to DLT and blockchain is the categorisation of tokens introduced by *FINMA* in its "ICO Guidelines" of 16 February 2018.[103] *FINMA* distinguishes the following categories of tokens:

- *Payment tokens* (according to *FINMA*, synonymous with "pure" cryptocurrencies), are tokens which are intended to be used, now or in the future, as a means of payment for acquiring goods or services or as a means of money or value transfer. Such cryptocurrencies do not give rise to a claim against an issuer or a third party. Consequently, according to the prevailing view, these tokens are "purely factual intangible assets". Examples of such cryptocurrencies are bitcoin (including numerous "altcoins" built upon the basic technical framework used for bitcoin) or Ether.

- *Utility tokens* are tokens that are intended to provide digital access to an application or service by means of a DLT-based infrastructure.

- *Asset tokens* represent assets such as a debt or equity claim against the issuer. Asset tokens promise, for example, a share in future company earnings or future capital flows. In terms of their economic function, such tokens may therefore qualify as equities, bonds or derivatives. Tokens which enable physical assets to be traded on a DLT-infrastructure also fall into this category according to *FINMA*.

FINMA has clarified that tokens may fall into more than one of these three basic categories: such *hybrid* tokens are, for example, asset tokens or utility tokens, which at the same time qualify as payment tokens.

On 11 September 2019, *FINMA* published a supplement to its "ICO Guidelines", which focused exclusively on "stable coins" ("Stable Coins Guidelines").[104] The Stable Coins Guidelines were published against the background of a request of the *Libra Association*, i.e., a not-for-profit entity domiciled in Switzerland, which fostered the development of the planned global currency Libra.[105] The *Libra Association* had asked *FINMA* for an assessment of how the Libra project, in particular the issuance of the Libra "stable coin", would likely be treated under Swiss financial market laws. *FINMA* took this opportunity to not only provide its initial views on Libra, but to publish the comprehensive Stable Coins Guidelines, which indicate how *FINMA* will assess projects involving tokens linked to an underlying asset.

FINMA stated that it will continue to apply a "substance over form" approach as a general principle, also with regard to "stable coins", just as it did and still does with regard to any other kind of token. *FINMA* furthermore mentioned that the design and the technical details of "stable coins" vary substantially. Nonetheless, according to *FINMA*, "stable coins" may on a high-level be categorised based on (i) the type of "underlying" or asset underlying the coin and (ii) the rights which holders of such coins have:

- *Currency backed coins*: If a stable coin is backed by currencies and the holders of such a coin have a redemption claim against the issuer at a fixed price (e.g., 1 coin for 1 CHF), such issuer may be deemed to be engaging in regulated deposit taking subject to a licensing requirement under the BA (see Section 5.2.2.1 above and dive on stable coins on page 56). If a coin is backed by a *basket* of currencies and

[103] See Guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICO's), published 16 February 2018 (FINMA, 2018b).

[104] See FINMA media release of 11 September 2019 (FINMA, 2019).

[105] See the Libra White Paper (The Libra Association, 2019). In April 2020, the Libra Association applied to FINMA for a payment system license. However, the focus of the project was shifted to the USA, whereupon the Diem Association (the former Libra Association) suspended the license application in May 2021; see FINMA Press Release of 12 May 2021 (FINMA, 2021c).

if the holders of such coin have a redemption claim against the issuer at the current value of such a basket (net asset value), such coin may qualify as a unit in a collective investment scheme and hence trigger licensing requirements under the CISA (see Section 5.2.2.6 above). Also, such currency backed stable coins might constitute a payment system (see Section 5.2.2.3 above).

- *Commodities backed coins*: If a stable coin is backed by commodities, the regulatory consequences depend on the type of commodity and whether the holders of such a coin have only (i) a contractual claim against an issuer or (ii) whether they have a right *in rem* with regard to the underlying commodity. In the latter case, financial market regulation does generally not apply and the stable coin does, in particular, not qualify as a security, if certain requirements are met. If the coin only grants a contractual claim, however, this likely triggers requirements under the BA (if the commodities are precious metals) or the coin may qualify as a security or a derivative (if the commodities are other commodities than precious metals). Furthermore, such commodity backed stable coins may possibly also constitute units in collective investment schemes.

- *Real estate backed coins*: If a stable coin is backed by real estate, such coin will likely be qualified as a unit in a collective investment scheme, hence triggering a licensing requirement under CISA (see Section 5.2.2.6 above).

- *Securities backed coins*: If a stable coin is backed by a single security (e.g., shares of a particular company), the coin as such will likely qualify as a security, and may, depending on the specifics of the individual case, constitute a derivative or even a structured product. If the coin is backed by a *basket* of securities, however, it will in most cases constitute a unit in a collective investment scheme within the meaning of CISA (see Section 5.2.2.6 above).

It must be noted that these *FINMA* guidelines are of an indicative nature only and not legally binding. In any case, however, the specifics of each "stable coin" project will need to be assessed based on the relevant details of the envisaged design of the token and the legal relationships between the parties involved.

With regard to the questions, whether a particular token (or coin) is a Financial Instrument (see Section 5.1.1.1 above) for the purposes of the FinSA, the following must be noted:

- Whether a token qualifies as a Financial Instrument or not depends on its economic function and, derived from this, which rights are represented by or linked to such particular token. Consequently, it must be assessed on a case-by-case basis whether a token qualifies a Financial Instrument or not.

- *Asset tokens*, *hybrid tokens* and *stable coins* granting their holders for example participation and voting rights in a corporation or rights to the repayment of debt are likely to qualify as Financial Instruments within the meaning of FinSA.

- *Payment tokens* are to date not treated as securities by *FINMA* and are generally[106] not deemed to be Financial Instruments within the meaning of FinSA.

- *Utility tokens* are currently also not treated as securities by *FINMA*, provided (i) their sole purpose is to confer digital access rights to an application or service and (ii) the tokens can actually already be used in this manner when they are issued. Such "pure" utility tokens, which neither partially nor exclusively function as an investment in economic terms, are also no Financial Instruments for the purposes of the FinSA.

5.3.2 DLT Law

The cornerstones of the DLT Law of 25 September 2020 are the introduction (i) of so-called Uncertificated Register Securities (*Registerwertrechte*) (Section 5.3.2.1), (ii) of a new license category for operators of DLT trading facilities (*DLT Handelsplattformen*) (Section 5.3.2.2) and (iii) of rules governing the segregation of crypto assets and data in insolvency proceedings (Section 5.3.2.3).

[106] Payment tokens may constitute deposits (Einlagen) and could therefore potentially be in scope of article 3 let. a ciph. 6 FinSA: "Financial Instruments are (…) deposits whose redemption value or interest is risk- or price-dependent, (…)".

The DLT Law was approved by Swiss Parliament in September 2020. Whilst the provisions allowing for a creation of Uncertificated Register Securities were enacted 1 February 2021 (see Section 5.3.2.1), the additional aspects of the DLT Law entered into force on 1 August 2021.

5.3.2.1 Uncertificated Register Securities

The DLT Law introduced a new concept of so-called "Uncertificated Register Securities" (*Registerwertrechte*), which aims at increasing legal certainty in connection with the "tokenisation" of rights and financial instruments. Based on the DLT Law, Swiss law now provides for the possibility of an electronic registration of rights and claims that has the same functionality and entails the same protection as a negotiable security.

Legal positions admissible as underlying rights of such Uncertificated Register Securities include rights against issuers, such as contractual claims or membership rights (e.g., shares in a corporation). Consequently, asset tokens, utility tokens, hybrid tokens as well as "stable coins" (see Section 5.3.1 above) may be issued in the form of Uncertificated Register Securities. Payment tokens, i.e., cryptocurrencies can, however, not be issued in the form of Uncertificated Register Securities since they do not give rise to any claims, which could serve as an underlying right.

In order to create Uncertificated Register Securities, the involved parties (e.g., the issuer of an instrument as debtor and the holders of the instrument as creditors) must enter into a registration agreement (*Registrierungsvereinbarung*). Based on this agreement the relevant right (i) is entered into the so-called "Register of Uncertificated Securities" (*Wertrechteregister*) and (ii) may exclusively be asserted based on and transferred via this register.[107]

The register must meet certain minimum requirements in order to qualify as a Register of Uncertificated Securities within the meaning of the DLT Law:

(i) the register must, by means of technical procedures, grant the creditors, but not the debtor, actual power of disposal (*Verfügungsmacht*) over their rights;

(ii) the register's integrity must be ensured by implementing the appropriate technical and organisational protective measures that prevent unauthorised changes to the register (e.g., joint administration by several independent parties);

(iii) the content of the registered rights, the functioning of the register itself and the registration agreement must be recorded either directly in the register itself or in accompanying data linked to the register; and

(iv) creditors must be able to view the information and data relating to themselves and they must be able to verify, without third party support or intervention, the integrity of the content of the register relating to themselves.[108]

In its dispatch of the DLT Law, the *Federal Council* mentions certain existing DLT-systems that are currently deemed suitable to fulfil the statutory minimum requirements. Both permissionless (e.g., Ethereum) as well as permissioned (e.g., Corda, Hyperledger Fabric) systems are mentioned in this (non-exhaustive) list.

The DLT Law also allows to bridge the new framework with the "traditional" book-entry securities (*Bucheffekten*) concept. In particular, it is possible to register Uncertificated Register Securities with a "*traditional*" *custodian* (e.g., *a bank*) and to subsequently book them into a "traditional" securities account. Hence, Uncertificated Register Securities can easily be transferred to the "old world" of book-entry securities, if desired.

5.3.2.2 DLT Trading Facilities

Under former Swiss law, there were only three categories of trading facilities: stock exchanges, multilateral trading facilities and organised trading facilities (see Section 5.2.2.2 above). For a number of reasons, these categories were deemed unsuitable for trading of crypto assets, e.g., because retail clients do not have direct access to regulated stock exchanges and multilateral trading facilities. Instead, these trading venues are only open to holders of a securities firm license and certain other regulated participants.[109]

Under the DLT Law, a new license category for (centralised) financial market infrastructures was introduced. These so-called "DLT Trading Facilities" (*DLT-Handelssysteme*) may offer services in the areas of

[107] Article 973d para. 1 CO.

[108] Article 973d para. 2 CO.

[109] Article 34 para. 2 FMIA.

trading, clearing, settlement and custody of DLT-based assets not only to regulated financial market participants but also to unregulated corporates as well as individuals, potentially including retail clients.

A license as a DLT Trading Facility can be obtained by trading venues that allow for the simultaneous exchange of offers between several participants and the conclusion of contracts based on non-discretionary rules and, in addition, provide for: (1) the admission of unregulated corporates or individuals; (2) the custody of DLT Securities based on uniform rules and procedures; or (3) the clearing and settlement of trades in DLT Securities based on uniform rules and procedures.[110]

"DLT Securities" (*DLT-Effekten*) are securities that are suitable for mass trading and are issued in the form of Uncertificated Register Securities (*Registerwertrechte*) and which, by means of technical procedures, grant the creditors, but not the debtor, the actual power of disposal over the uncertificated securities.[111]

Payment tokens as well as (mere) utility tokens that do not serve an investment purpose do not constitute DLT Securities. However, a DLT Trading Facility may also permit the trading of payment and utility tokens that do not qualify as DLT Securities.

The licensing requirements for DLT Trading Facilities are largely modelled on the requirements for traditional trading venues (i.e., stock exchanges and multilateral trading facilities). However, specific rules with respect to the admission of participants and the admission of DLT Securities have been added.[112] Furthermore, additional requirements for certain types of DLT Trading Facilities have been established, e.g., for DLT Trading Facilities that admit retail investors as participants and therefore require higher standards of customer protection.[113] On the other hand, relief from certain requirements applicable to DLT Trading Facilities that are considered "small" in terms of number of participants or trading and custody volume, respectively, have been granted.[114]

[110] Article 73a FMIA.

[111] Article 2 let. b^{bis} FMIA.

[112] For an overview see FINMA guidelines for applications concerning licensing as a DLT trading facility (FINMA, 2021d) (version of 2 August 2021), which are available in German, French as well as English.

[113] Article 58i et seq. FMIO.

[114] Article 58l FMIO.

5.3.2.3 Insolvency

Crypto assets such as cryptocurrencies and tokenised financial instruments are often stored with third party custodians, such as exchanges or wallet providers.

Under former Swiss law it was unclear whether crypto assets held by a custodian on behalf of a client would be segregated in the bankruptcy of the custodian, especially if the creditor or investor did not hold (any) private key(s). The DLT Law therefore introduced a new segregation regime that allows the segregation of crypto assets for the benefit of the relevant creditors or investors in the bankruptcy of the custodian, if certain requirements are met, including, in particular, the following:

- First, the relevant custodian must have an obligation vis-à-vis the relevant creditor or investor to hold the crypto assets available for him at all times. This means that the custodian may, for example, not use such crypto assets for proprietary business or own-account transactions.

- Second, the crypto assets are only segregated if they can be either (i) unambiguously allocated to the individual creditor or investor (however, there is no need that such allocation occurs directly on the relevant DLT-system itself) or (ii) allocated to a group of investors or creditors and it is evident what share of the joint holdings belongs to a given creditor or investor. The latter option allows a pooling of crypto assets held for several creditors or investors.

In addition, the access to data in insolvency in general is governed by the DLT Law. Under ancient Swiss law it was not clear whether digital data stored by a third party custodian (e.g., a cloud provider) could be segregated from the bankruptcy estate of such custodian. The DLT Law introduced a right to request segregation of digital data regardless of whether such data has any (market) value or not (e.g., a holiday picture) in the bankruptcy proceedings of a custodian. The person requesting such segregation must show that it has a specific entitlement to the data for which the segregation is being requested (e.g., a statutory or contractual claim). Furthermore, the person requesting segregation may be required to pay a fee in advance, which will then be used to cover the costs of the data retrieval and segregation.

Excursus: FINMA Guidance on Stable Coins

Context and History of Stablecoin Regulation

On July 26, 2024, FINMA published the Guidance 06/2024 "Stablecoins: risks and challenges for issuers of stablecoins and banks providing guarantees" (the "Guidance"). The Guidance was published in the context of a global rise and development of regulatory standards for stable coin issuers, namely the EU's Markets in Crypto Assets (MiCA) Regulation, the FSB's recommendations on stablecoin regulation,[115] the FATF's targeted update on the implementation of the FATF standards on virtual assets and virtual asset service providers (VASP),[116] and various other guidelines published by financial regulators.[117] The Guidance clarifies KYC/CDD obligations in the context of issuing stablecoins and sets out the requirements to bank guarantees granted to stablecoin issuers to avoid triggering a licensing requirement under the BA.

Know Your Customer Duties under AMLA

Consistent with FINMA's regulatory practice, the Guidance reiterates that, stablecoin issuers are considered financial intermediaries within the meaning of AMLA by the act of issuing stablecoins alone. As a consequence, the AMLA and the requirements set out thereunder apply to issuers of stablecoins, namely the duty to verify the identity of the stablecoin holder as the customer (Art. 3 AMLA) and establish the identity of the beneficial owner (Art. 4 AMLA). Further, if doubt arises in the course of the business relationship as to the identity of the customer or of the beneficial owner, the verification of identity or establishment of identity must be repeated (Art. 5 para. 1 AMLA).

To ensure compliance with AMLA, stable coin issuers must, therefore, implement contractual and technological transfer restrictions (*e.g.*, limiting transfers to VASPs complying with anti-money laundering requirements or other forms of whitelisting) that allow the issuer to comply with its duties under AMLA.

Default Guarantees

As general rule, deposit taking is regulated under the BA. As a consequence, any person that accepts public deposits requires a license as a bank under the BA. To the extent that an individual stable coins grants the investor a redemption claim against the issuer, the stable coin issuer may be deemed to be engaging in regulated deposit taking. However, under the BO, claims against stablecoin issuers guaranteed by a licensed bank are exempt from the treatment as regulated deposits and therefore do not require the issuer to obtain a banking license under the BA. According to FINMA, various stablecoin issuers in Switzerland use such default guarantees in lieu of a license under the BA.

The Guidance sets out the e requirements that must be met by a default guarantee in order for the exemption from the licensing requirement under the BA to apply:

- Each customer must have an individual claim against the Swiss bank issuing the default guarantee and be informed of the guarantee.
- The default guarantee must cover public deposits with interest.
- The claims to be covered by the default guarantee may not exceed the coverage of the guarantee.
- The specifics of the default guarantee must permit timely guarantee calls by customers.
- Defenses and objections by the guarantee-issuing bank are permitted to the extent provided by law.
- Customers' claims under the guarantee must become due at the latest at the time of the stablecoin issuer's insolvency, *i.e.* at the latest at the time of the opening of bankruptcy proceedings against the stablecoin issuer, and not only at the time of the issuance of a certificate of loss.
- If there are multiple default guarantees, the increased need for coordination and the resulting operational risks must be highlighted and adequately addressed.

[115] Financial Stability Board, High-level Recommendations for the Regulation, Supervision and Oversight of Global Stablecoin Arrangements, Final report, available at: https://www.fsb.org/uploads/P170723-3.pdf.

[116] FATF, Virtual Assets: Targeted Update on Implementation of the FATF Standards on VAs and VASPs, July 2024, available at: https://www.fatf-gafi.org/en/publications/Fatfrecommendations/targeted-update-virtual-assets-vasps-2024.html.

[117] Cf. *i.a.* Financial Conduct Authority (UK), Discussion Paper (DP) 23/4, Regulating cryptoassets Phase 1: Stablecoins, November 2023, available at: https://www.fca.org.uk/publication/discussion/dp23-4.pdf; Hong Kong Monetary Authority/Financial Services and the Treasury Bureau, Legislative Proposal to Implement the Regulatory Regime for Stablecoin Issuers in Hong Kong, Consultation Conclusion, July 2024, available at: https://www.hkma.gov.hk/media/eng/doc/key-information/press-release/2024/20240717e3a1.pdf.

6. AI Language Models in Finance

By Thomas Ankenbrand, Denis Bieri & Angelo Gattlen, HSLU; Urs Rhyner, Inventx AG; Stephanie Wickihalder, SFTI / Swiss FinTech Innovations

Large language models (LLMs), such as the ones provided by OpenAI, are gaining widespread attention and adoption. They are increasingly integrated into everyday activities, including tasks such as suggesting recipes and holiday planning. However, companies face greater challenges in utilising these models due to various contextual considerations.

In this chapter, some of the conditions relevant to the financial services industry are discussed. First, the basics of LLMs (Section 6.1) and then two exemplary prototypes are presented (Section 6.2). Various framework conditions that need to be considered on the way from prototype to application are then highlighted (Section 6.3). The chapter concludes with a summary and outlook on the subsequent planned research projects in this context (Section 6.4).

6.1. Description of (Large) Language Models

LLMs are advanced artificial intelligence systems designed to understand, generate, and manipulate human language for a wide range of applications. These models are trained on extensive datasets that include text from books, articles, websites, and other sources. By analysing the patterns, structures, and context within these texts, LLMs develop a statistical understanding of language that enables them to perform a wide range of tasks (Sejnowski, 2023).

LLMs are neural networks with billions of parameters (Sejnowski, 2023). They are probabilistic and generate text based on probability distributions of the language (Bubeck et al., 2023). Sometimes this can lead to inaccuracies like hallucinations, i.e., outputs that appear plausible but are factually incorrect (Manakul, Liusie, & Gales, 2023). LLMs do not possess true knowledge of the world, such as rules or facts, but rather have knowledge derived solely from textual descriptions of the world. Furthermore, the so-called cut-off date must be taken into account. This is the point at which their training data was last updated.

In addition to LLMs, more and more small language models (SLMs) are also being investigated for various applications, as they are less computationally and data intensive. Therefore, language models (LMs) will be referred to unless the text explicitly mentions LLMs or SLMs.

6.2. Prototypes for Investment Advice and Impact Investing

LLMs are increasingly applied across various domains and can offer significant value to the financial services industry. This potential is illustrated through two prototypes described in the following paragraphs.

The first prototype focuses on investment advice and is described in more detail in Ankenbrand et al. (2023). The prototype explores the integration of LLMs like GPT with rule-based systems in financial advisory. The goal is to demonstrate technical feasibility and develop a corresponding prototype for investment advice. The probabilistic nature of LLMs is a challenge for financial advice because financial advice requires traceable and explainable recommendations. There are numerous regulatory requirements, such as information duties, registration obligations, and data privacy laws, that need to be considered in this context. The prototype demonstrates that integrating LLMs with rule-based systems is technically feasible by limiting the role of LLMs to client interactions. While the LLM collects relevant client information, including age, income, and risk appetite, the actual investment recommendation is generated through predefined, deterministic logic. It shows that LLM-based user interactions for rule-based investment recommendations can generally work.

The second prototype, which is described in more detail in Ankenbrand, Bieri, Caspar, et al. (2024), explores the application of LLMs in assessing sustainability exposures of selected investments and aligning them with the

UN's Sustainable Development Goals (SDGs). Impact investing focuses on funding companies that address social and environmental issues, often using the SDGs as a guiding framework (Spiess-Knafl & Scheck, 2017). These goals, adopted by the UN, are categorised into six transformative areas for sustainable development (Sachs et al., 2019). However, evaluating a company's SDG alignment remains difficult due to inconsistent sustainability ratings and varying interpretations. The prototype presented leverages an LLM to rank companies' SDG exposure based on publicly available data. Using web scraping, the prototype gathers information from a company's website, which is then analysed by an LLM model acting as an "SDG expert". The model assigns rankings based on the relevance of each company's activities to the SDGs. The prototype analysed companies of two investment funds: a growth fund and a carbon-focused fund. The results revealed that growth fund companies prioritised innovation- and production-related SDGs, while carbon fund companies focused more on ecology-related goals like climate action and clean energy. The analysis demonstrated the ability of LLMs to successfully differentiate SDG priorities across funds with different focuses.

While the prototypes showcased the potential of LLMs to enhance investment advisory and sustainability assessments, they also highlighted challenges such as data quality, model variability, and interpretability. The effectiveness of LLMs depends on high-quality input data and proper prompt engineering and parameter tuning. Additionally, compliance with data protection and intellectual property regulations is crucial when integrating proprietary data.

6.3. From Prototype to Application

The two prototypes presented are examples of the basic technical feasibility of applying LLMs for services from the financial industry. However, various factors need to be clarified before a prototype can be turned into a practical application. In the following subsections, these factors are structured using the dimensions of the STEP framework, i.e., the social, technological, economic, and political/legal dimensions. The subsection concludes with the presentation of an example of an implementation framework.

6.3.1 Social Dimension

The Gen AI scale introduced by Hundertmark and Hafner (2024) provides a structured way to classify AI applications based on their impact, ranging from one to ten. At one end of the scale (one), applications involve direct interaction with customers, such as chat and voice bots in customer service. At the other end (ten), processes operate entirely within the company, often without visibility even to employees, such as fully automated dark processing. Hence, the impact of AI is different, depending on whether it is focused on customer interaction or automation. This manifests itself across all other STEP dimensions, particularly in the business case and regulation. In principle, and especially in the financial industry, user acceptance is crucial for the adoption of a new technology. Furthermore, geographical and cultural differences affect how these technologies are perceived and adopted across markets.

6.3.2 Technological Dimension

The current rise of LLMs is driven by several factors related to technology. Technological advancements have increased computational power and data processing, enabling sophisticated algorithms to perform complex tasks in widely accepted cloud infrastructures efficiently. The digital age has brought an abundance of data, enhancing AI learning and predictive accuracy (Neumann & Wickihalder, 2025).

However, various limitations and challenges are emerging, particularly with LLMs. The computing power required to train LLMs is hardware- and energy-intensive and therefore expensive (Ding et al., 2023). SLMs offer a potential alternative, as they require fewer resources due to their reduced size and complexity, making them more cost-effective and easier to deploy (Sanh, Debut, Chaumond, & Wolf, 2020). It is also sometimes undesirable to place sensitive data in a public cloud or model. Operating in a separate cloud, which is more feasible for SLMs than for LLMs, can enhance data confidentiality and ensure better compliance with regulatory requirements. Beyond platform and deployment considerations, other important technology-related factors include prompt engineering (White et al., 2023) and parameter tuning (Ding et al., 2023). These aspects must be systematically addressed to ensure that the models provide accurate, context-aware outputs tailored to specific business needs.

6.3.3 Economic Dimension

AI and LMs can offer cost efficiency by automating repetitive tasks traditionally performed by humans. In addition, their ability to provide advanced analytics supports improved decision-making (Neumann & Wickihalder, 2025). The profitability of the use cases is determined by the benefits and costs. In terms of benefits, cost savings on the one hand and an increase in income on the other can be achieved. In the Swiss financial industry, cost savings are likely to play a more significant role due to the high saturation of the market. However, a significant challenge lies in selecting the right model type under economic constraints. Financial institutions must weigh the trade-offs between LLMs and SLMs and open-source and closed-source solutions. Open-source models can reduce costs but may present security and compliance challenges. SLMs, which are more resource-efficient and easier to deploy, may provide cost benefits while maintaining greater control over sensitive data but might not match the performance of large-scale closed-source models. Successfully navigating these trade-offs requires effective AI governance frameworks that manage operating concept, data control, supplier relationships, and regulatory compliance.

In addition to development and implementation costs, the operating costs must also be taken into account. These costs can be roughly divided into the following areas: IT costs, model costs, and data costs. The IT costs and model costs are relatively clear and easy to estimate based on known infrastructure requirements and technical needs. Data costs are more complex and harder to predict. These may include expenses related to acquiring, cleaning, labeling, and particularly maintaining high-quality datasets. Additionally, ongoing access to third-party or proprietary data sources can involve recurring fees, legal agreements, and compliance with data privacy regulations, making data-related costs more variable and difficult to control over time.

Data, however, forms the basis of LMs, whether for training or operation. Data availability and quality are essential. For many financial service providers, this entails significant investments in modern infrastructure, such as data warehouses, which are expanding rapidly due to data growth, increased complexity, and the rise of additional data suppliers. Banks are transitioning from traditional data warehouses to data lakes and hybrid data lakehouse architectures, which combine structured and unstructured data, with both types becoming increasingly important. Managing this growing and complex data landscape requires significant changes in IT architecture and robust governance frameworks to ensure data usability, security, and compliance (Neumann & Wickihalder, 2025). In addition to economic considerations, privacy and governance aspects must also be taken into account.

6.3.4 Political and Legal Dimension

Most of the AI regulation in Switzerland is based on existing laws, such as the Federal Data Protection Act, to govern emerging technologies instead of creating AI-specific legislation. The emphasis on transparency, data minimisation, and protecting individuals' rights is essential (Neumann & Wickihalder, 2025) for ensuring the responsible and ethical use of emerging technologies.

The FINMA Guidance 08/2024 outlines essential considerations for financial institutions, ensuring they manage AI-related risks effectively. By maintaining comprehensive inventories with risk classification, quality management of data, test concepts with ongoing monitoring, documentation, explainability, independent reviews, and establishing governance frameworks, Swiss financial institutions can better navigate the complexities and risks associated with AI technologies (FINMA, 2024).

Switzerland's strategic alignment with international standards, especially the EU AI Act, showcases their commitment to cross-border compliance and fostering transparency, mitigating biases, and proactive governance measures. The Swiss Federal Council's initiative to evaluate and potentially regulate AI in 2025 further underscores their active approach to responsible AI oversight (Neumann & Wickihalder, 2025).

6.3.5 Example of an Implementation Framework

The application of LMs in the financial sector presents a wide range of challenges. These can be effectively addressed by focusing on six key factors (Neumann & Wickihalder, 2025):

- Strategic Decision-Making
- Governance and Compliance
- Data Management

- Implementation Approach
- Organisational Readiness
- Monitoring and Risk Management

These six areas can be further broken down into 33 logical components and 105 clear, step-by-step instructions, outlining necessary actions, key questions, and desired outcomes to support effective implementation and risk mitigation (Neumann & Wickihalder, 2025). A similar project approach is also illustrated in the work of Hundertmark and Hafner (2024).

6.4. Summary

In conclusion, many essential elements are already in place for the successful application of AI and LMs in the financial industry. However, the transition from innovation to full deployment remains a complex process, as not all use cases are equally viable or suitable for implementation.

One particularly promising area for AI applications in the Swiss financial sector is compliance, where automation and advanced analytics can help address regulatory requirements and risk management (Neumann & Wickihalder, 2025). Examples include the automation of manual tasks such as document verification, Know Your Customer processes, and regulatory reporting. These use cases often combine document analysis with rule-based conditions, thereby improving efficiency and reducing human error while ensuring adherence to regulatory standards. Given the significant potential in this domain, further research and exploration of the challenges and opportunities associated with AI-driven compliance solutions present a valuable and promising avenue for development.

7. Crypto Assets Market in Switzerland

The global crypto asset market experienced significant growth in 2024, with total market capitalisation reaching unprecedented all-time highs (see Figure 7.1). Over the course of the year, total market capitalisation nearly doubled, peaking at just under USD 4.0 trillion in mid-December. This expansion reflects the continued development of the crypto asset investment industry and its increasing relevance in the broader financial ecosystem.

Switzerland, known for its stable financial infrastructure and progressive regulatory environment, has mirrored this global trend. As a financial centre, it has played an active role in the adoption and integration of crypto assets within traditional finance, leveraging its position to support innovation in the sector.

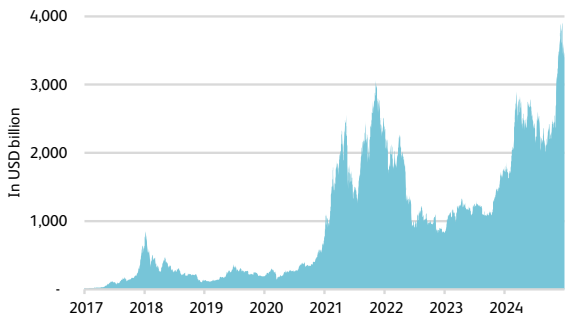

Figure 7.1: Total market capitalisation of the crypto assets market (source: CoinGecko (online-a))

This chapter provides an overview of the crypto asset ecosystem in Switzerland, focusing on market volumes (Section 7.1) and the role of crypto assets in investment portfolios (Section 7.2).[1]

7.1. Market Volumes

Market volumes can serve as an indicator of liquidity, investor activity, and the overall maturity of the crypto asset market. In the context of Switzerland, market volumes analysed in this section encompass three main categories:

1. **Indirect financial crypto investment products:** This includes assessing the number and diversity of indirect financial products tied to crypto assets listed on the traditional Swiss exchanges SIX and BX Swiss.

2. **Trading volumes for crypto products on traditional exchanges:** This focuses on evaluating the trading volumes of indirect financial products based on crypto assets on the traditional Swiss exchanges SIX and BX Swiss.

3. **Trading volumes for crypto investments on crypto exchanges:** This entails analysing Swiss-originated trading volumes of crypto assets on centralised and decentralised exchanges and the associated derivatives volumes on crypto derivatives exchanges.

In general, investing in crypto assets can be categorised into direct investing, where investors purchase and hold crypto assets themselves, and indirect investing, where exposure to crypto assets is achieved through financial products. The following sections of this chapter are structured accordingly, first exploring the dynamics and trends in indirect investing (Section 7.1.1) and then delving into direct investing (Section 7.1.2). This structure provides a general analysis of Switzerland's involvement in both direct and indirect investment strategies within the developing crypto asset market.

7.1.1 Indirect Investments

Indirect investments encompass financial products where investors gain exposure to crypto assets without directly owning the underlying assets. This includes products such as exchange-traded products (ETPs) and structured products. Indirect investing in crypto assets can either be done using financial products on crypto assets on traditional stock exchanges or via trading of derivatives on crypto derivatives exchanges.

Figure 7.2 provides an overview of the monthly development in the number of crypto-related financial products traded at the two traditional Swiss stock exchanges

[1] Further facts on the Swiss and Liechtenstein ecosystem for crypto assets investments can be found in Ankenbrand, Bieri, and Reichmuth (2024).

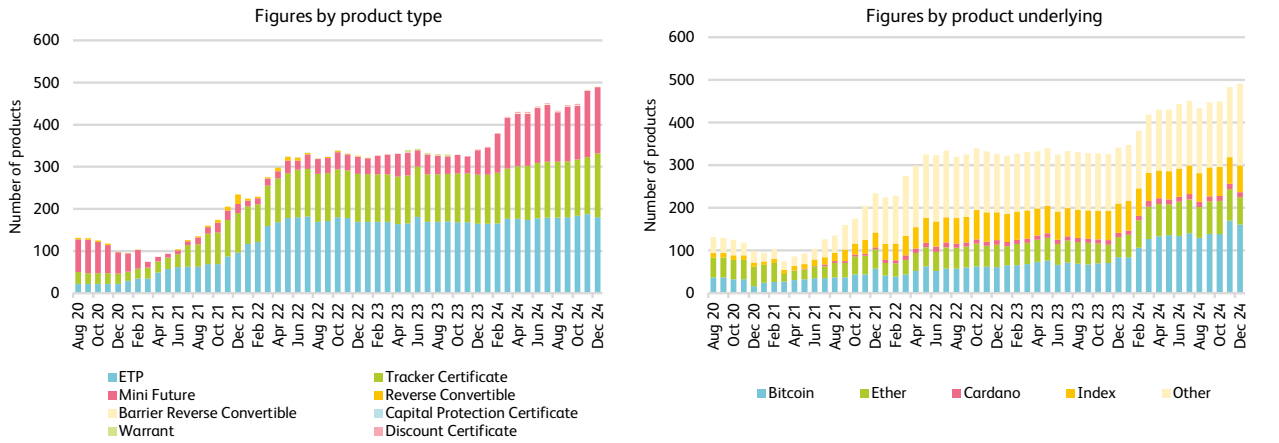

Figure 7.2: Number of crypto-related financial products traded in Switzerland per month by product type (left-hand graph) and the underlying asset (right-hand graph) (sources: BX Swiss, SIX)

BX Swiss and SIX, categorised by product type (left-hand graph) and underlying asset (right-hand graph).

The left-hand graph shows that the total number of products has generally increased over the observation period, rising from 131 in August 2020 to 491 in December 2024. The most significant contributions to this growth come from tracker certificates, mini futures, and ETPs. Tracker certificates have steadily increased, particularly after mid-2021, reaching 152 by the end of 2024. ETPs have also shown relatively consistent growth, climbing from 22 in August 2020 to 180 in December 2024, reflecting the growing adoption of such products. Mini futures, despite some fluctuations, show a recent resurgence, growing to 157 by December 2024. Other instruments, such as reverse convertibles, capital protection certificates, and warrants constitute, relatively minor contributors.

Bitcoin remains the leading underlying asset, rising significantly from 37 products in August 2020 to 161 products in December 2024, as shown in the right-hand graph of Figure 7.2. Similarly, the number of products linked to Ether has steadily increased over this period, reaching 64 by the end of 2024. Indices, which represent baskets of crypto assets, and Cardano have demonstrated slower yet consistent growth. Meanwhile, the "Other" category, encompassing alternative crypto assets, has seen remarkable expansion, particularly since 2022, reaching 192 in December 2024. This includes products based on Algorand, ApeCoin, Cosmos, Internet Computer, Litecoin, Maker, Solana, Stellar Lumens, Uniswap, and XRP, among others, and underscores the broadening diversification of underlying assets beyond the more dominant crypto assets.

The monthly on-exchange trading volumes of these indirect financial products are shown in Figure 7.3, with a breakdown between ETPs and structured products. The left-hand graph presents the absolute trading volumes, while the right-hand graph provides a relative comparison of their respective shares.

The left-hand graph reveals that in recent months, trading volumes of crypto-based financial products on Swiss stock exchanges have experienced a resurgence. Starting from late 2023, total trading volumes began to rise, reaching CHF 336 million in February 2024 and surging to CHF 700 million in March 2024. Although trading volumes dipped in the following months, they remained elevated, with another significant surge to CHF 921 million in November 2024. This resurgence underscores increased investor activity and growing engagement with crypto-based financial instruments, reversing the decline experienced in 2022 and early 2023.

The right-hand graph of Figure 7.3 shows the relative trading volumes between ETPs and structured products and reveals significant shifts over time. Initially, structured

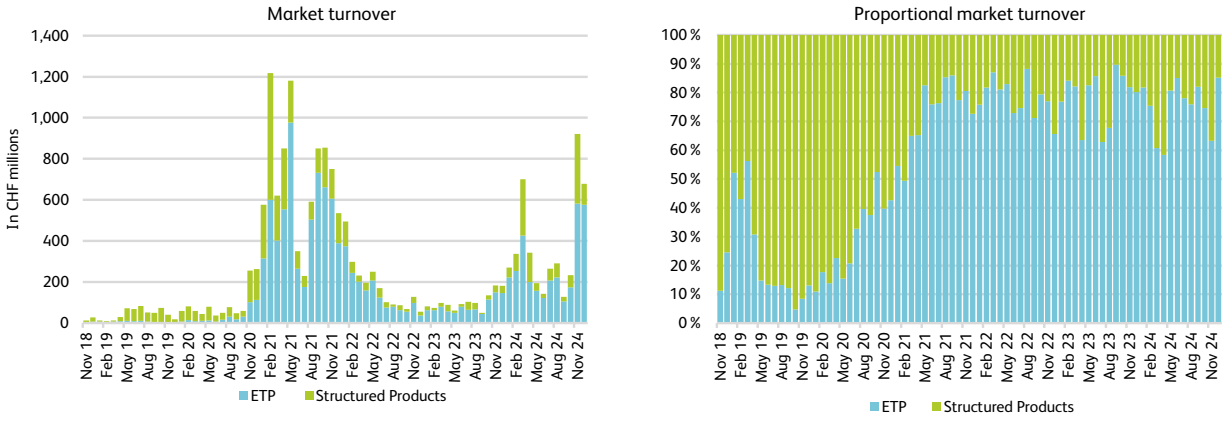

Figure 7.3: Market turnover by month, absolute (left-hand graph) and proportional (right-hand graph) (sources: BX Swiss, SIX)

products dominated trading, accounting for more than 80 percent of the total volume until mid-2020. After that, ETPs began to claim a larger share of the market, surpassing structured products and reaching over 80 percent of the trading volume by May 2021. This trend persisted, with ETPs consistently maintaining dominance, often contributing between 75 percent and 90 percent of the total volume in the subsequent years. While there were occasional periods of increased balance, such as in early 2024 when structured products briefly represented up to 42 percent of total trading in April, ETPs quickly regained their strong position. By the end of 2024, ETPs accounted for 85 percent of total trading, underscoring their sustained dominance in the market.

Figure 7.4 illustrates trading activity based on the SIX Crypto Market Index 10 (CMI10)[2], providing a different measure of market engagement by correcting for price effects of the underlying assets. The data suggests that trading activity tends to be higher during periods of general price increases in the crypto assets market, indicating that the observed growth in trading volumes is not solely driven by rising asset prices but also reflects greater investor participation. Conversely, trading activity declines when prices fall, pointing to reduced market engagement in such conditions. This pattern highlights the connection between trading behaviour and broader market sentiment, independent of price developments alone.

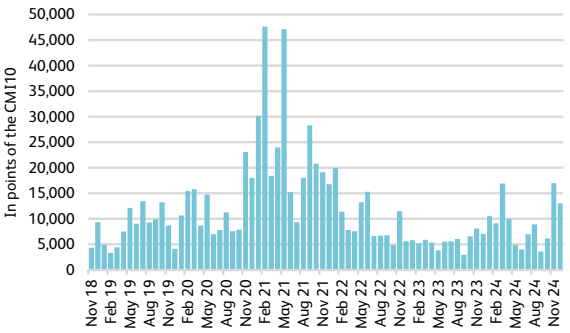

Figure 7.4: Total turnover in points of the SIX Crypto Market Index 10 by month (sources: BX Swiss, SIX)

The left-hand graph of Figure 7.5 presents the number of trades in thousands for crypto-based financial products on the SIX exchange[3], revealing a pattern that closely mirrors trading volumes. Trade activity surged during periods of market expansion, particularly in early 2021, reflecting heightened market participation. This was followed

[2] The CMI10 tracks the performance of the ten largest and most liquid crypto assets (SIX, online-a).

[3] Note that data on the number of trades is not available for the BX Swiss exchange.

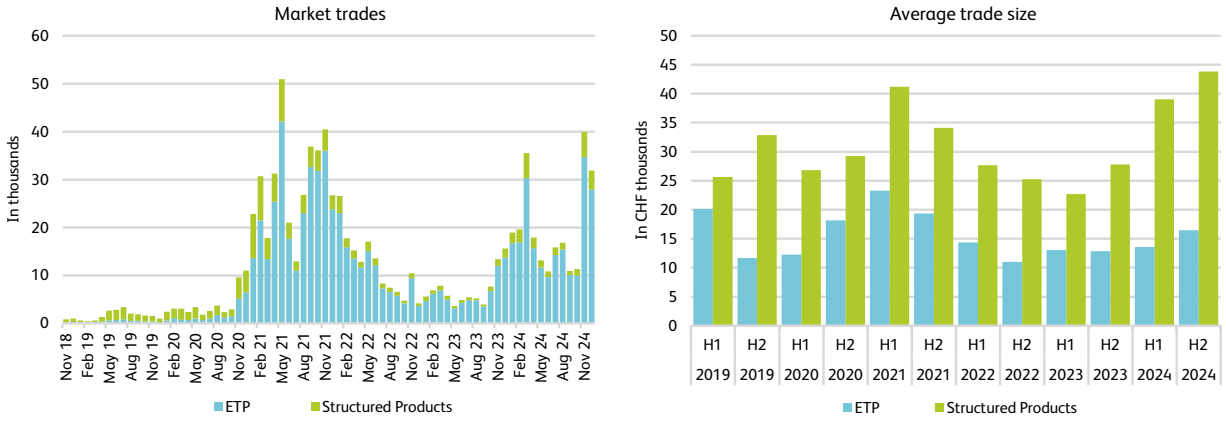

Figure 7.5: Number of trades by product type and month (left-hand graph) and average trade size by product type and half-year (right-hand graph) (source: SIX)

by a gradual decline throughout 2022, indicating reduced trading intensity. Activity then stabilised at lower levels in 2023. However, 2024 saw renewed engagement, with notable increases in trade counts during certain months. By December 2024, the total number of trades reached 31,867, with 27,922 attributed to ETPs and 3,945 to structured products.

The right-hand graph in Figure 7.5 depicts the half-yearly average trade size in CHF for crypto-based financial products on the SIX exchange, revealing distinct trends for ETPs and structured products. Structured products consistently show higher average trade sizes than ETPs, indicating a tendency for larger-value transactions. Both categories experienced fluctuations over time, with peaks in early 2021, followed by a decline throughout 2022. Since 2023, the average trade size for ETPs has remained relatively stable at lower levels. In contrast, structured products, after a similar decline, demonstrated a strong recovery in 2024, reaching a new high of CHF 43,840 in the second half of the year, while ETPs reached CHF 16,492.

Another way to gain exposure to crypto assets through indirect financial products is by trading derivatives on crypto exchanges. Unlike tokens on DLTs, these derivatives are proprietary products offered by individual exchanges. As a result, they cannot be withdrawn to personal wallets, making them indirect investments rather than direct ones.

The methodology used to estimate the monthly derivatives trading volume on derivatives crypto exchanges from Switzerland follows the same approach as that applied to determine trading volumes on centralised and decentralised crypto exchanges, as outlined in Section 7.1.2.

Figure 7.6 shows the trading volumes on derivatives crypto exchanges originating from Switzerland, showing relatively low activity throughout 2020.

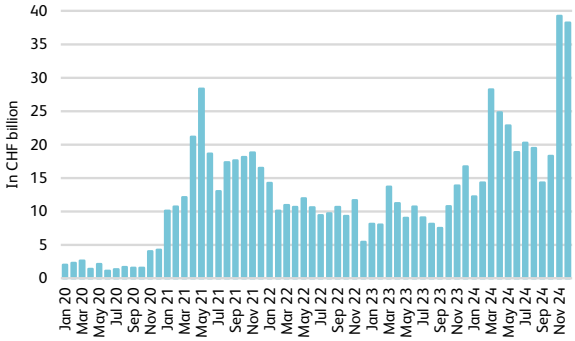

Figure 7.6: Monthly derivatives trading volume on derivatives crypto exchanges from Switzerland (source: CoinGecko (online-b), Semrush (online))

A notable peak occurred in May 2021, reaching CHF 28.3 billion, followed by a downward trend that extended into early 2022. From 2022 until the end of Q3 2023, trading volumes moved largely sideways with no significant fluctuations. However, Q4 2023 marked the beginning of a recovery, leading to an upward trend from January to March 2024. This was followed by a decline until September 2024, after which trading volumes started rising again. The year ended with a strong upward trend in Q4, culminating in an all-time high of CHF 39.2 billion in November 2024.

7.1.2 Direct Investments

Unlike indirect investments, direct investments involve acquiring and holding crypto assets directly, granting investors ownership and control over their tokens. This approach requires engaging with blockchain technology or with specialised intermediaries for activities such as trading and custody. Through self-custody, investors retain full authority over their assets, enabling transfers and usage without relying on intermediaries. However, self-custody also presents certain challenges and risks, including the necessity of understanding private keys, public addresses, and wallet security.

Since direct investments are more closely tied to blockchain technology than indirect investments, assessing their global distribution is complex due to the inherent anonymity of blockchain transactions. In the following analysis, trading activities related to direct investments are estimated and compared. The methodology used to derive these estimates is outlined below:

Step 1: Monthly trading volumes for all crypto exchanges were collected from CoinGecko (online-b).

Step 2: From January 2020 to December 2024, the top 20 exchanges by total trading volume were identified each month. Only exchanges with a CoinGecko trust score above five out of ten were included to ensure reliability and liquidity (CoinGecko, online-c).

Step 3: The proportion of total website traffic from Switzerland for each of these exchanges was obtained from Semrush (online) on a monthly basis.

Step 4: The Swiss trading volume for each exchange was estimated by multiplying its global trading volume by the share of website traffic originating from Switzerland.

Step 5: These monthly Swiss trading volumes for each in-scope exchange were aggregated over the sample period to determine the overall trading activity of Swiss clients.

The final figures presented are derived from global trading volumes and website traffic data linked to Switzerland, making them indicative rather than directly observable values. This methodology was applied separately to three categories of crypto exchanges, namely centralised, decentralised, and derivatives crypto exchanges (see Section 7.1.1).

Centralised crypto exchanges (CEXes) are digital platforms that facilitate crypto trading, often providing order books, matchmaking engines, and custodial services that reduce users' exposure to blockchain technology. However, reliance on custodial services introduces counterparty risk, as users give up direct control of their private keys.

Figure 7.7 illustrates the estimated monthly trading volume on CEXes originating from Switzerland.

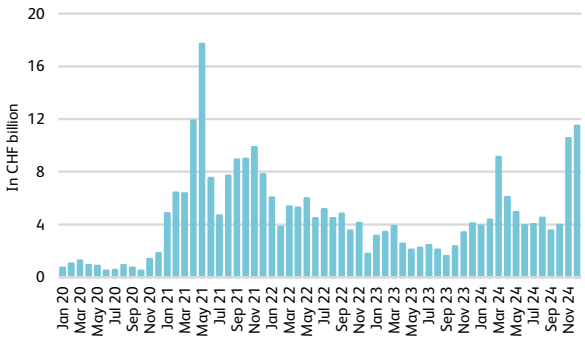

Figure 7.7: Monthly spot trading volume on centralised crypto exchanges from Switzerland (source: CoinGecko (online-b), Semrush (online))

Between November 2020 and May 2021, trading activity increased sharply, peaking at nearly CHF 17.7 billion. After this high point, volumes declined steadily, reaching a low of approximately CHF 1.6 billion by September

2023, marking a 91 percent drop from the peak in May 2021. Following this decline, trading volumes temporarily rebounded, climbing to around CHF 9.1 billion in March 2024 before falling again to CHF 3.9 billion by the end of June 2024. However, from November to December 2024, trading activity on CEXes picked up once more, rising to CHF 11.5 billion by the end of the year.

Decentralised crypto exchanges (DEXes) are blockchain-based platforms that enable peer-to-peer trading of digital assets without the need for centralised intermediaries. Unlike CEXes, which oversee trading and custody under a central authority, DEXes operate through smart contracts that facilitate direct transactions between users. As a result, users retain full control over their crypto holdings and must manage their private keys independently using digital wallets. However, in some cases, holdings may also be managed through third-party accounts that facilitate transactions on behalf of their clients.

As shown in Figure 7.8, trading volumes on DEXes reached an all-time high in December 2024, with a peak of CHF 1.5 billion. Despite this record, trading activity on DEXes remained significantly lower compared to CEXes. The first half of 2024 saw an overall upward trend, with trading volumes rising to CHF 0.71 billion in July 2024. However, this was followed by a temporary decline, as trading volumes dropped in August and September 2024. From October 2024 onwards, trading activity picked up again, culminating in the December peak. Looking at previous years, trading volumes experienced two notable peaks in April 2021 and November 2021, before declining sharply. Throughout 2022 and 2023, activity remained subdued, with consistently low trading volumes before the recovery began in late 2023.

[4] Swiss population data was obtained from the Federal Statistical Office (2024) and refers to the end of Q3 2024.

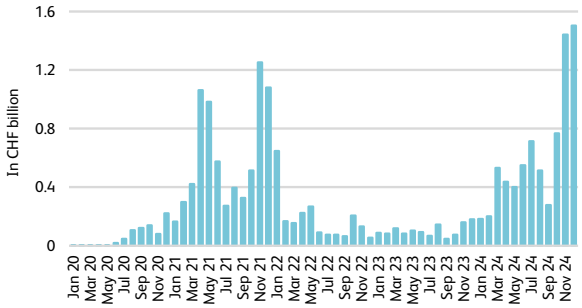

Figure 7.8: Monthly spot trading volume on decentralised crypto exchanges from Switzerland (source: CoinGecko (online-b), Semrush (online))

In recent years, the crypto trading volumes originating from Switzerland at centralised, decentralised, and derivatives exchanges have followed similar trends, though notable differences exist in terms of their respective magnitudes. As such, Table 7.1 presents the estimated global trading volume, the estimated share of Swiss web traffic, the estimated Swiss trading volume, and the derived Swiss volume per capita for the three different types of exchanges.

Looking at the global trading volumes, derivatives crypto exchanges report the largest total, amounting to CHF 136,271 billion. CEXes follow with CHF 25,993 billion, while DEXes record a significantly smaller figure of CHF 2,264 billion. The typically larger trading volumes on derivatives exchanges compared to CEXes and DEXes can be attributed to various factors, such as the availability of leverage and short-selling opportunities, as well as the diverse range of payoff structures that derivatives offer. In contrast, the lower volumes on DEXes compared to

Table 7.1: Volume comparison of different crypto exchange types, 2024

	Centralised exchanges	Decentralised exchanges	Derivatives exchanges
Global volume	CHF 25,993 bn	CHF 2,264 bn	CHF 136,271 bn
Swiss traffic share	0.27 %	0.33 %	0.20 %
Swiss volume	CHF 70.5 bn	CHF 7.5 bn	CHF 271.1 bn
Swiss volume per capita[4]	CHF 7,804	CHF 833	CHF 30,025

CEXes are often linked to factors like lower liquidity, more complex technology, potential risks from smart contracts, and the involvement of blockchain in every trade, which can lead to higher transaction fees and longer settlement times.

When it comes to website traffic originating from Switzerland in 2024, DEXes account for the largest share at 0.33 %, followed by CEXes with 0.27 percent, and derivatives exchanges with 0.20 percent.

The estimated Swiss trading volumes are derived by multiplying each exchange's global trading volume by its respective web traffic share from Switzerland. In 2024, derivatives exchanges are estimated to have traded CHF 271.1 billion, CEXes CHF 70.5 billion, and DEXes CHF 7.5 billion. These disparities are also apparent on a per capita basis, with the average Swiss investor trading CHF 30,025 on derivatives exchanges, CHF 7,804 on CEXes, and CHF 833 on DEXes. It is important to note that while these figures are based on the Swiss population, institutional investors based in Switzerland might play a role in these trading volumes as well.

7.2. Crypto Assets as an Investment

The increasing prominence of crypto assets, particularly Bitcoin, has garnered significant attention among Swiss investors. Recent studies indicate that approximately eleven percent of the Swiss population currently hold crypto assets, with a notable concentration among younger individuals, males, and those with higher incomes. Despite this growing interest, the majority of these investments are relatively modest in scale, often driven by curiosity rather than strategic financial objectives such as portfolio diversification or the pursuit of high returns (Dietrich, Rey, & Amrein, 2024). Nevertheless, the increasing adoption of crypto assets by Swiss investors highlights the need to critically assess Bitcoin's potential as a strategic component within the investment portfolios of Swiss investors. Such an analysis can thus serve investors seeking to make more informed decisions about potentially incorporating Bitcoin into their investment strategies.

In the following, the potential of the crypto assets market for Swiss investors is evaluated. The following basic assumptions are made:

1. Bitcoin (denominated in CHF) is used as a proxy for the crypto asset market, given its consistently significant market share within the sector. By the end of 2024, Bitcoin accounted for roughly 57 percent of the total market capitalisation of the crypto market (CoinMarketCap, online). The price data for Bitcoin was obtained from finanzen.net (online).
2. A traditional investment universe for Swiss investors encompasses stocks, bonds, and real estate, represented respectively by the Swiss Performance Index® (SPI), the Swiss Bond Index® TR (SBI), and the CH Real Estate® Shares TR (SXI). The corresponding data was sourced from SIX (online-b).
3. Portfolio allocation for traditional investors reflects the benchmark strategy of Swiss pension funds, as outlined by the Occupational Pension Supervisory Commission (OPSC). According to this strategy, roughly 40 percent of a portfolio is allocated to bonds, 35 percent to equities, and 25 percent to real estate (OPSC, 2024).[5]
4. The observation period spans from the beginning of 2018 to the end of 2024. This timeline marks the introduction of indirect investment products for crypto assets, which made the asset class easily accessible to traditional investors without requiring direct interaction with blockchain technology.

Building on these assumptions, the analysis evaluates Bitcoin's performance and diversification potential within a traditional Swiss investment portfolio, as an example. A key aspect of this evaluation is understanding the relationship between Bitcoin returns and those of established asset classes. The degree to which Bitcoin behaves independently of or in conjunction with traditional assets such as stocks, bonds, and real estate is critical in determining its role as a diversification tool.

Figure 7.9 illustrates the rolling 30-day correlation between Bitcoin (BTC) returns and the three traditional asset classes: stocks (SPI), bonds (SBI), and real estate (SXI).

The correlations between Bitcoin and these traditional asset classes fluctuate over time, with values switching between positive and negative levels. Overall, the patterns suggest that Bitcoin exhibits historically low and unstable correlations with these traditional asset classes.

[5] Infrastructure investments, alternative investments, and cash positions are excluded from the analysis for simplicity reasons.

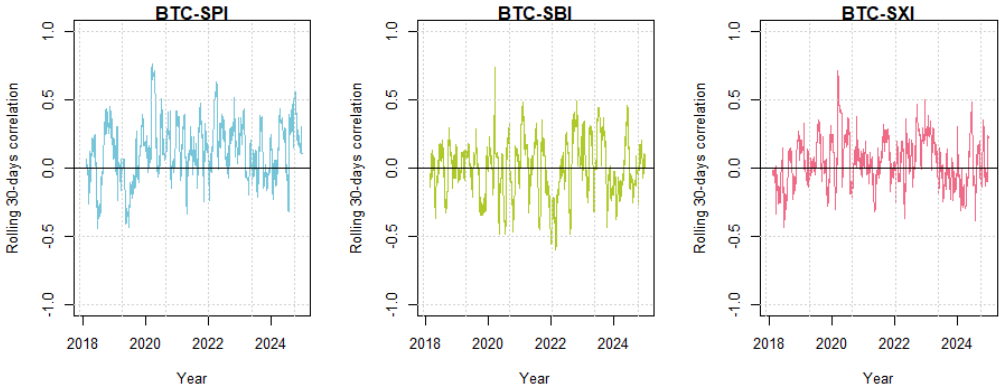

Figure 7.9: Correlations between Bitcoin returns and traditional assets classes

To further evaluate Bitcoin's suitability in a portfolio context, a comparative analysis of two portfolio structures is conducted: a benchmark portfolio reflecting traditional Swiss investment allocations and an alternative portfolio that incorporates Bitcoin as a modest allocation. This comparison aims to quantify the impact of including Bitcoin on overall portfolio performance and risk characteristics. The specific portfolio compositions are defined as follows:

1. **Benchmark portfolio**: 40 percent SBI, 35 percent SPI, 25 percent SXI
2. **Alternative portfolio**: 39 percent SBI, 34 percent SPI, 24 percent SXI, three percent BTC

Hence, the benchmark portfolio is designed to align with the potential investment strategies of Swiss pension funds. In contrast, the Bitcoin-inclusive portfolio reallocates one percentage point from each traditional asset class, resulting in a total allocation of three percent to Bitcoin.

To illustrate the potential implications of including Bitcoin in a portfolio, an analysis of portfolio performance and risk is conducted. The outcomes of this analysis are presented in Figure 7.10, which provides a visual comparison of the cumulative returns and risk profiles for portfolios with and without Bitcoin over the observation period. This figure offers insights into the benefits and trade-offs associated with integrating Bitcoin into traditional Swiss investment portfolios. The top panel of Figure 7.10 illustrates the cumulative returns of two portfolios: one that includes Bitcoin and another that excludes it, with both portfolios rebalanced annually to maintain their original asset allocation. Since 2018, the Bitcoin-inclusive portfolio achieved a cumulative return of 47.3 percent, compared to 28.6 percent for the portfolio without Bitcoin.

The bottom panel of Figure 7.10 illustrates the maximum drawdown for the same two portfolios over the same period. Maximum drawdown measures the largest peak-to-trough decline in portfolio value. The portfolio including Bitcoin shows slightly deeper drawdowns during periods of market stress, particularly in times of high volatility in the crypto market, such as during 2018 and 2022. However, the recovery periods for both portfolios are similar, with the Bitcoin-inclusive portfolio maintaining its higher return trajectory despite slightly higher drawdowns.

For the year 2024, the annualised return for the portfolio including Bitcoin is 11.79 percent, compared to 7.92 percent for the portfolio excluding Bitcoin. The annualised standard deviation, an alternative measure of risk, is slightly higher for the Bitcoin-inclusive portfolio at 6.11 percent compared to 5.40 percent for the portfolio excluding Bitcoin. Hence, while the former portfolio yielded a higher return in 2024, it was also subject to higher risk.

Building on the analysis for 2024, Figure 7.11 provides a year-by-year comparison of the annualised Sharpe ratio[6] for portfolios including and excluding Bitcoin from 2018 to 2024, along with a summary for the total observation period. The Sharpe ratio is a measure of risk-adjusted return,

[6] The spot interest rates on ten-year Swiss Confederation bonds serve as a proxy for the risk-free rate. Corresponding data is sourced from the Swiss National Bank (online).

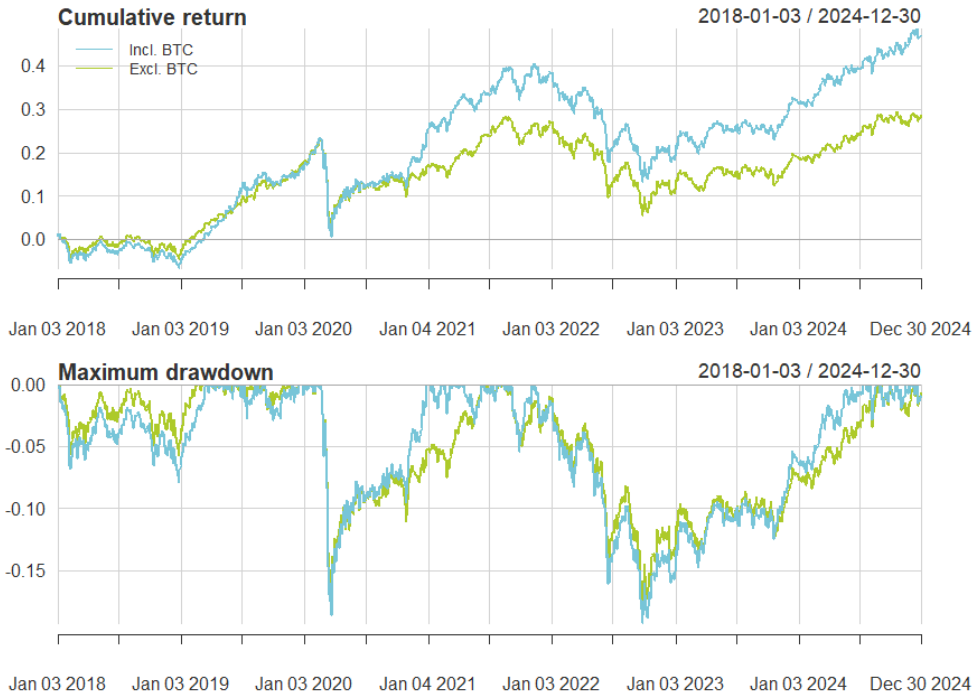

Figure 7.10: Portfolio performances in- and excluding Bitcoin

with higher values indicating better performance relative to risk.

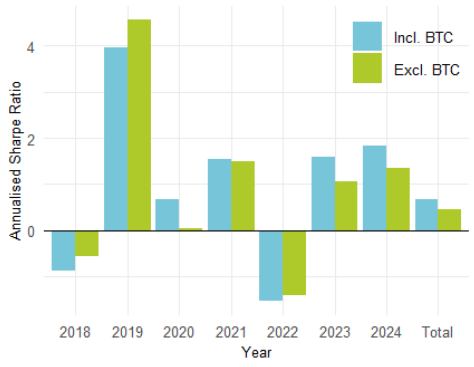

Figure 7.11: Annualised Sharpe ratios by year

The figure shows that the Bitcoin-inclusive portfolio has often exhibited higher Sharpe ratios in recent years compared to the portfolio excluding Bitcoin. Notably, in 2019, the inclusion of Bitcoin led to a lower Sharpe ratio compared to the Bitcoin-excluded portfolio. Also, during 2018 and 2022, the Sharpe ratio for the Bitcoin-inclusive portfolio dropped below that of the portfolio excluding Bitcoin, reflecting periods of heightened volatility and lower relative performance for Bitcoin. In other years, particularly 2023 and 2024, the Sharpe ratio for the Bitcoin-inclusive portfolio improved, outperforming the portfolio excluding Bitcoin. Over the full observation period, the Bitcoin-inclusive portfolio achieved a higher Sharpe ratio of 1.82 compared to 1.35 for the portfolio without Bitcoin exposure.

In summary, the volumes in the Swiss crypto asset ecosystem continued to rise in 2024. Whether crypto assets, exemplified here by Bitcoin, are a useful addition to an investment portfolio depends on the portfolio and the investor's risk preference. In the past, potentially higher returns have come at the price of higher risks, although past performance is no guarantee of future performance.

8. Trends in Payments

The global payments landscape is undergoing constant transformation due to the megatrend towards a cashless economy and other developments. Mobile payment apps, often referred to as digital wallets, are gaining in importance. However, these digital wallets increasingly go beyond pure payment functions and offer a wider range of applications. The following sections provide an overview of global trends in the payments industry and their relevance to the Swiss payments landscape. In addition, the role of digital wallets in the Swiss market is shown. This chapter is based on the reports "Payment Study" and "Digital Wallets", published by the Lucerne University of Applied Sciences and Arts in November 2024 and October 2024, respectively.[1]

8.1. Global Developments in the Payment Industry

Driven by changing customer needs, technological innovations, and the entry of new market players, the payments landscape is undergoing a transformation. One of the most notable global shifts is the move towards a cashless society (McKinsey & Company, 2023). This megatrend has been significantly accelerated by the spread of smartphones and digital platforms, as well as the growing preference for contactless and digital payment methods. However, this development is more than just the replacement of cash. It is part of a broader change that includes other trends, such as cross-border payments and instant payments. Based on a literature review and insights from industry experts, ten global payment trends can be identified:

- Emergence of **embedded payments**
- Adoption of **instant payments**
- Advancements in **cross-border payments**
- Increased use of **digital wallets**
- Addressing the needs of the **unbanked population**
- Growth of **value-adding services**
- Heightened focus on **payment security**
- Integration of **cryptocurrencies** (e.g., stablecoins)
- Transformation of **outdated infrastructure**
- Push for **standardisation**

These trends are driven either by the needs and expectations of end users or by technological innovations. Accordingly, these ten trends are categorised in Figure 8.1 based on their primary driving force as "user orientation" or "technology". For payment service providers, understanding these developments in the payment landscape is key to adapting their services to changing market requirements. Some payment trends are a prerequisite for others, particularly with regard to infrastructure, which highlights the interdependencies between trends which can complicate or increase the cost of adopting new technologies and services.

8.2. Relevance of Global Payment Trends to the Swiss Payments Landscape

The trend towards a cashless economy is also evident in Switzerland. Mobile payments have established themselves as the leading payment method and account for

[1] See the full reports at Aerni et al. (2024) and Ankenbrand, Bieri, Gattlen, et al. (2024).

Figure 8.1: Classification of global trends

26.8 per cent of all transactions (Graf, Heim, Stadelmann, & Trütsch, 2024). However, not all ten global payment trends are equally relevant to the Swiss payments landscape. The trends were categorised according to an assessment by experts as "highly relevant", "relevant", and "less relevant" for the Swiss market. The corresponding classification is summarised in Figure 8.2. The four trends that are classified as "highly relevant" are **cross-border payments**, **payment security**, **embedded payments**, and **value-adding services**. These trends are described in more detail in the following paragraphs.

Cross-border payments play a central role due to the high degree of international integration of the Swiss economy. Companies and customers in Switzerland demand efficient, cost-effective, and transparent payment services that are available across national borders. Therefore, Swiss financial service providers must ensure that domestic payment solutions are harmonised with international standards. A key element of this harmonisation is ISO 20022, a standard crucial to the G20-endorsed roadmap to enhance cross-border payments, which aims to improve data quality and transmission efficiency, thereby making such transactions faster and more transparent (BIS, 2023).

With the increase in digital payment transactions, Swiss financial institutions and their customers face more complex cyber threats. **Payment security** is therefore becoming increasingly important. Due to the constant need to adapt payment security measures, the use of advanced technologies such as AI for real-time fraud detection is crucial to prevent fraud and ensure customer trust (PwC, 2021). However, such technologies also offer new vulnerabilities for cybercriminals, who are also developing increasingly sophisticated methods to circumvent established security measures (McKinsey & Company, 2023).

As customers seek new, seamless services where payment transactions are integrated invisibly into their daily activities, the importance of **embedded payments** is growing. According to Juniper Research (2024), this trend is reinforced by the widespread adoption of such solutions, which make payment transactions seamless and practically invisible in the background, allowing users to complete payments without leaving the primary platform (such as an online shop or a park-and-pay system).

Value-adding services such as loyalty programs and personalised financial offers are becoming more relevant as they enhance payment transactions and strengthen customer loyalty (Ernst & Young, 2022). Swiss financial service providers are focusing to a greater extent on such value-added services, such as rounding savings (De Biasio, 2024), in order to offer their customers added value and differentiate themselves from competitors.

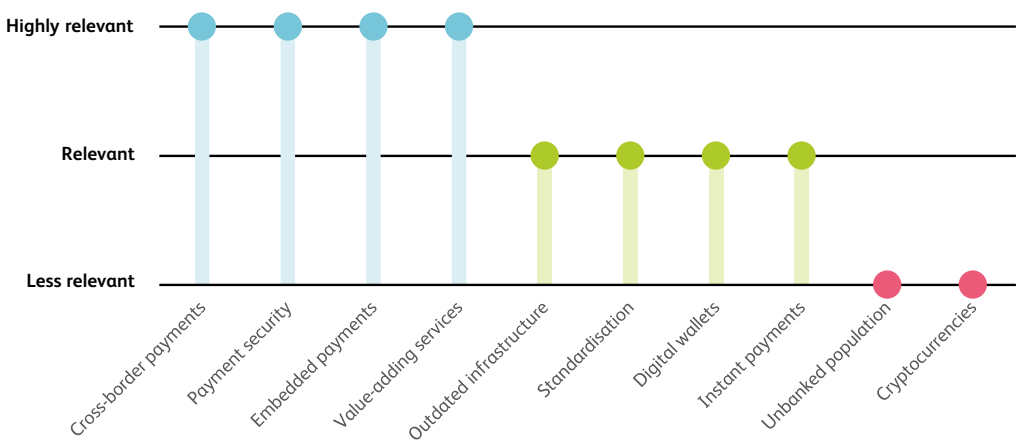

Figure 8.2: Relevance of global trends for Switzerland

8.3. The Role of Digital Wallets in the Swiss Market

Although digital wallets are increasingly integrated into daily life, the corresponding trend is only categorised as "relevant" in the "Payment Study" but not as "highly relevant" (see Figure 8.2). The reason for this is that digital wallets have already become widely established as a means of payment. In a survey in 2022, 68 percent of respondents in Switzerland stated that they used mobile payment apps, which are often referred to as digital wallets due to their function as a payment method, compared to only 48 percent in 2020 (Swiss National Bank, 2023). Many Swiss banks and payment service providers already offer solutions that enable users to pay securely and conveniently with digital wallets.

Digital wallets, which were initially conceived as digital equivalents of physical wallets, are used for much more than just storing and managing means of payment, such as debit or credit cards in mobile applications. A digital wallet is an interface for securely interacting with and managing data and digitised assets (Ankenbrand, Bieri, Gattlen, et al., 2024). In addition to processing online and point-of-sale transactions, digital wallets also have the ability to store electronic identities (e-IDs), digital assets (such as tickets), and other data. With the rise of distributed ledger technology, digital wallets have evolved into versatile platforms that manage tokenised assets and permissions alongside cryptocurrencies and enable direct interactions with decentralised finance applications.

Currently, there are a large number of digital wallets, but there is no dominant wallet in sight (Ankenbrand, Bieri, Gattlen, et al., 2024). Most likely, users will focus on a few wallets that seamlessly integrate different products and services. The popularity of a wallet will be determined primarily by its convenience, functionality, availability, and cost efficiency. Acceptance rates will reveal which features resonate most with customers.

8.4. Taxonomy for Digital Wallets and e-IDs

Due to the large number of digital wallets and their different functions, Ankenbrand, Bieri, Gattlen, et al. (2024) introduce a taxonomy in their study on "Digital Wallets", enabling various wallet types to be classified on the basis of different attributes, such as issuer governance or service features. The attributes chosen for the taxonomy are derived from a comprehensive analysis of existing reports and operational solutions, alongside practical considerations aimed at capturing the essential aspects of digital wallets. The taxonomy outlines 18 core features of digital wallets, each broken down into specific characteristics. The chosen framework is both inclusive and flexible, recognising that some characteristics are not mutually exclusive, meaning that a single digital wallet can exhibit multiple features simultaneously. By classifying these features in a comprehensive framework, the design of the various wallet solutions can be better understood and compared.

E-ID has become a vital part of the digital landscape, offering a secure and efficient way for individuals to verify their identities both online and offline. This facilitates seamless access to services and secure authentication across various settings. Digital wallets are increasingly incorporating e-IDs, enhancing their utility by combining identity verification and digital storage in one platform. Self-sovereign identity (SSI) further transforms digital identity by giving individuals full control over their credentials. Unlike traditional e-IDs managed by central authorities, SSI allows users to create, manage, and share their identity independently. This decentralised approach improves privacy and security by enabling selective disclosure of information, reducing the risk of data breaches. When integrated into digital wallets, SSI offers a secure and seamless experience, blending the security of e-IDs with the flexibility of self-sovereign identity.

Switzerland is considering an e-ID solution, with implementation planned for 2026 (EJPD, 2024). The technological roadmap and current developments of the Swiss Confederation's e-ID programme are transparently documented in a GitHub repository.[2] The main goal is to ensure strong privacy protection and international interoperability. The investigations conducted by the Swiss Federal Department of Justice and Police have determined that only one of these goals can be achieved by 2026. Therefore, implementation will take place in two stages. Initially, a highly secure trust infrastructure will be introduced. In the second stage, the goal is to meet even stricter privacy protection requirements, particularly ensuring that the various uses of the e-ID cannot be traced back to an individual. The digital wallet will be named "SWIYU" (The Federal Council, 2024).

[2] The repository is available at https://github.com/e-id-admin.

Table 8.1: Classification of the wallet described in the Swiss e-ID Program

Attribute	Option 1	Option 2	Option 3	Option 4	Option 5
Issuer governance	Open-source	Single entity	Consortium	Government	
Issuer legal status	FINMA-supervised	SRO-supervised	Incorporated	Other	
Supported content	Transactional	Investment	Utility	Credentials	
Service features	Storage	Transfer	Authentication	Other(s)	
Transaction handling	Pass-through	Staged	Stored value account	Other	
Content range	Single	Multiple			
Content governance	Self-custody/SSI	Institutional custody	SC-governed		
Content technology	Centralised database	Local edge storage	DLT		
Interoperability	Monolithic solution	Partner-enabled	Ecosystem-aligned		
Authentication	Knowledge-based	Possession-based	Inherence-based	Behavioural	Other(s)
Signature rights	Single	Multi	Threshold	Hierarchical	Other(s)
Privacy	Data minimisation	Opt-in privacy	Shared data model	Public data	
Recovery	Self-service	Social	Institution-assisted	Hardware-based	No recovery
Wallet type	Mobile	Secured mobile	Browser	Desktop	Hardware
Programmability	Non-programmable	Basic scripting or APIs	SC-enabled	Fully programmable	
End-user pricing	Free	Subscription-based	Service-based	One-time fee	Mixed
KYC requirements	No information	Basic credentials	Identity verification	Tiered	
Target users	B2B	B2C	B2B2C		

Based on the tech roadmap on GitHub and the official website of the Swiss e-ID programme[3], the planned design for the e-ID wallet is used to showcase the practicability of the digital wallets taxonomy introduced by Ankenbrand, Bieri, Gattlen, et al. (2024) in the "Digital Wallets" report in Table 8.1. It is important to note that the precision of the assessed attributes varies, with some classifications relying on the most intuitive interpretation of available data.

In summary, developments in payment systems and the widespread adoption of digital wallets have the potential to further transform the financial landscape in Switzerland. Digital wallets have already established themselves as a means of payment and continue to gain importance as they increasingly offer additional functions and services, extending beyond the financial sector. In this context, the planned Swiss e-ID may have a significant impact on future wallets and the financial industry.

[3] See https://www.eid.admin.ch/.

9. Conclusion and Outlook

This chapter presents key statements and hypotheses based on the findings of the IFZ FinTech Study 2025. It summarises trends in the Swiss and Liechtenstein FinTech sector and provides insights into underlying market dynamics and potential future developments.

The FinTech market shows signs of saturation. The Swiss FinTech market has reached a plateau in terms of the total number of companies. As of the end of 2024, Switzerland had 483 FinTech companies, the same number as in 2023. While there were new market entrants, an equal number of companies exited the market through liquidations, mergers, or shifts away from FinTech activities, resulting in no net growth. This balance between new entrants and market exits suggests a potential market saturation, where growth opportunities are increasingly limited. In contrast, Liechtenstein has experienced continued expansion, with the number of FinTech companies rising from 22 in 2023 to 28 in 2024. The Swiss and Liechtenstein FinTech sector recorded an increase from 505 to 511 companies, which corresponds to below-average growth of one percent year-on-year.

Funding activity continues to decline. Venture capital (VC) funding in the Swiss and Liechtenstein FinTech sector has seen a marked decline in recent years. After peaking at CHF 605 million in 2022, total funding volumes dropped to CHF 301 million in 2024, reflecting increased investor caution and a more selective funding environment. Seed rounds were most affected, plummeting from a record CHF 232 million in 2023 to just CHF 19 million in 2024. The total number of financing rounds shows a similar trend. While 87 VC rounds were counted in 2021, the record year, this number fell continuously in the following years and was just 54 in 2024. Swiss and Liechtenstein financing activities are thus following the global trend in the FinTech sector, which has been on a downward trend since 2021.

Growth opportunities arise in the international business-to-business sector. The steady shift towards international markets and business clients suggests a strategic response to opportunities for growth and innovation beyond domestic boundaries for Swiss and Liechtenstein FinTech companies. This trend can also be observed in the market capitalisations of globally listed FinTech companies with corresponding market focus. From an offering perspective, sustainable financial solutions and products are another growth area in the Swiss and Liechtenstein FinTech sector. This is reflected in the number of Sustainable FinTech companies, which rose from 49 to 59 last year and now accounts for around twelve percent of all FinTech companies.

Revenue models differ depending on the business model and technology applied. Swiss and Liechtenstein FinTech companies use traditional banking revenue models, such as interest and trading, less frequently, while commission-based models remain a common choice, particularly among companies leveraging distributed ledger technology. In contrast to these banking-oriented models, revenue approaches originating from the IT sector, such as software-as-a-service (SaaS) and licence fees, are also relevant. While SaaS has gained significant popularity due to its scalable, subscription-based structure, licence-based models have become less prominent in recent years. Alternative revenue sources, including advertising and data sales, play only a marginal role in the sector.

Focus shifts from innovation to implementation. The Swiss and Liechtenstein FinTech sector is increasingly shifting from pure innovation to the practical implementation of advanced technologies. The integration of solutions such as artificial intelligence, distributed ledger technology, and sustainable high-performance computing will further accelerate. A growing number of FinTech companies has adopted these technologies more rapidly than traditional process digitalisation, automatisation, and robotics solutions. This trend reflects the sector's maturation, as companies move beyond the prototyping phase to deploy solutions that meet real-world market demands, comply with regulatory standards, and address evolving customer expectations.

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This study was developed in collaboration with the following individuals, who contributed through written input, discussions, document reviews, and various forms of feedback (listed in alphabetical order). Unless otherwise indicated, the authors from the HSLU are responsible for the content of chapters without specifically designated authors.

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Appendix A

Appendix A lists the legal names of the identified FinTech companies in Switzerland and Liechtenstein as per the end of 2024 that fall under the definition of FinTech in Chapter 1. In total, the Swiss and Liechtenstein FinTech sectors together counted a total of 511 companies at the end of 2024.

Companies

21 Analytics AG
21.finance AG
21Shares AG
3circlefunding GmbH
3rd-eyes analytics AG
4bridges GmbH
4finance AG
Aacatis Service GmbH
Abrantix AG
Accounto AG
Acredius AG
Actus AG
Adaptivv Financial Technologies AG
Additiv AG
AdNovum AG
Advice Online AG
Adviscent AG
Aequitec AG
AgAu AG
Aionite Capital AG
Aisot Technologies AG
Aixigo (Schweiz) AG
Aktionariat AG
Allindex AG
Allocare Holding AG
Alphasys AG
Alpian SA
Alquant AG
Altcoinomy SA
Altoo AG
Amforc AG
Amina Bank AG
Ammer Group AG
Amnis Treasury Services AG
AM-One AG
Anapaya Systems AG
Anchored Coins AG
Anova Partners AG
Apiax AG
Arf Financial GmbH
Ariadne Business Analytics AG
Arvy AG
Ascentys Sàrl
Atfinity AG
Atpar AG
Auditchain Labs AG
Aumico AG
Avaloq Group AG
Avance Pay AG
Aviita Establishment
Avobis Invest AG
Axedras Group AG
Backed Finance AG
Base58 Capital AG
Beedoo SA
Believe. Partners AG
Billte AG
Bitclear AG
Bitcoin Capital AG
Bitcoin Suisse AG
Bity SA
Block Green AG
Bloomio AG
BLP Digital AG
Blue Code International AG
Blue Finance AG

Companies

Blueyellow AG
Bmpi AG
BPC AG
Bprotocol Stiftung
Brainbot Labs Establishment
Braingroup AG
Breezing SA
BrickMark Group AG
B-Sharpe SA
BTSE AG
BX Swiss AG
Caeleste AG
Calidris Technology AG
Callirius AG
CAM Schweiz AG
Canopia Sàrl
Canopy Europe AG
Capnovum (Switzerland) GmbH
Carbon X Tons SA
Cashare AG
CashSentinel SA
Celsion Finance AG
CembraPay AG
Centi AG
CG24 Group AG
Check Your Customer GmbH
Checksum AG
ChooseSmart GmbH
Chorus One AG
Clanq AG
Climacrux GmbH
Climada Technologies AG
CLL Compliance Labs AG
Cofex AG
Colb Asset SA
Conda.ch GmbH
Confinale AG
Conser - ESG verifier SA
Copper Markets (Switzerland) AG
Copula GmbH
CoreLedger AG
Correntics AG
Cortex AG
Cotierra AG
Counteo SA
Covalence SA
Crealogix Holding AG
Credit Exchange AG
Creditfolio AG
Creditworld AG
Criptonite Asset Management SA
Crowd Solutions AG
Crowdhouse AG
Crowdli AG
Crowdlitoken AG
Crowdtransfer AG
Cryptnox SA
Crypto Finance AG
CryptoEasy AG
CSL Corporate Services Ltd.
Curio Capital AG
Cutting edge GmbH
Cybera Global AG
Cynos AG
Datacie SA
Datalevel AG
Datatrans AG
Daura AG
DCAP AG
DCM Systematic SA
Decard Group AG
DecentAge AG
Decom Switzerland AG
DeFi Suisse AG
Delega Treasury AG
DeltaconX AG
Deon Digital AG
DePay AG
Derizone AG
Descartes Finance AG

Companies

DIA
Digital Assets Technologies AG (DAT)
Divizend Suisse GmbH
Dloop AG
Dsent AG
DSwiss AG
Dublin IT GmbH
Dufour Capital AG
Dydon AG
DYdX Stiftung
E24 AG
EAM.Technology AG
EarthXCG GmbH
EasyReg Sàrl
EBOP SA
Ecofin Software and Technology AG
ECollect AG
EconSight AG
Ecoo AG
Edge Lab SA
Efficient.capital AG
Element36 AG
Eligamo AG
ElleXX universe AG
Elysium Lab Sagl
EM Exchange Market GmbH
Enterprise Bot GmbH
Eny Finance AG
Equanimity AG
ERI Etudes et Réalisation en Informatique bancaire SA
Estably Vermögensverwaltung AG
E-swissolar AG
Eternalyst AG
Etops Group AG
Evahomes SA
Everon AG
Evooq SA
Evorest AG
Exeon Analytics AG
FANtium AG
FE Swiss Financial AG
Ferris Solutions AG
Ficas AG
Fidectus AG
Fidentity AG
Fides Treasury Services AG
FinConTec AG
Findependent AG
FinFinder.ch AG
Finform AG
Finhorizon AG
Finnova AG Bankware
Finpact AG
Finpeers SA
Finpension AG
Finrate AG
FinSwiss SA
Fintama AG
Fintex AG
Floin Ltd.
Flov Technologies AG
FNZ Switzerland SA
Forctis AG
Fortunnity SA
Foxstone SA
Frigg.eco AG
FumeX AG
Fundo SA
Fundof SA
Futurae Technologies AG
G-20 Advisors AG
GenTwo AG
GIST Advisory Switzerland SA
Globalance Bank AG
GlobalPass AG
Go4balance AG
Gofintech AG
Greenmatch AG
Grizzly Development AG
GTF Gesellschaft für technologiebasierte Finanzdienstleistungen AG

Companies

GWAP Financial Sàrl
Haqq Association
Hashdex AG
Heidi Pay AG
Hodlr GmbH
Honesto AG
Honesto AG (Liechtenstein)
Hyphen Global AG
Hypodossier AG
I2 invest ag
I2i Logic (Switzerland) AG
IAccess Partners AG
Ibani SA
Id4 AG
IFinity AG
Immocando AG
ImmoZins AG
Impaakt SA
Inapay AG
Indagia AG
Indigita SA
Inrate AG
Instimatch Global AG
Interaction Partners AG
Invao Trading AG
Invemo Capital AG
Inventx AG
Invest Conservation SA
Investart AG
InvestGlass SA
Investment By Objectives (IBO) SA
Investment Navigator AG
InvestSuite SA
Inyova AG
IODD SA
Jelly Labs AG
Jibrel AG
K51 AG
Kashet Group AG
Kasparund AG
KeeSystem SA
Kemiex AG
Kinesis AG
Klara Business AG
Klarpay AG
KomGo SA
Konsento AG
Kontera GmbH
Kviit AG
Kyoto Technologies AG
Laevitas SA
LaGrand GmbH
Lamassu Industries AG
Laser Digital Holdings AG
LCX AG
Lean Financial Solutions GmbH
LeaseTeq AG
Ledgy AG
Lendity AG
Lendora SA
Leonteq AG
Leva Capital Partners AG
Lex Futura AG
LibertyGreen 3a Vorsorgestiftung
Lightning Payment Services AG
Liquineq AG
Liquity AG
Lirium AG
Liti Capital SA
Loantrade AG
Lourens Systems GmbH
LumRisk SA
Lynceus Partners (Switzerland) GmbH
M0 Stiftung
M2Wealth AG
MachinaLabs AG
Management Joint Trust SA
Mark Investment Holding AG
Marmot Investment Office AG
Masttro Switzerland AG

Companies

Maverix Securities AG
MC2Fi AG
Mesoneer AG
MetaOne AG
MoneyPark AG
Moribono AG
Move Digital AG
MPower Ventures AG
Mt Pelerin Group SA
MyDio SA
Myso Finance Association
NBK Labs AG
Neon Exchange AG
Neon Switzerland AG
Netcetera Group AG
Neur.on AI Solutions SA
Neuronomics AG
Newbridge SA
Nexo AG
Nextesy AG
Nimbo AG
Nomiks Sàrl
Norsia SA
Numarics AG
Numeus Research AG
Obligate AG
Ondefy SA
One PM AG
OneVisage SA
Onloan GmbH
Oomnium AG
Open Forest AG
Open Mineral AG
Oper Credits AG
Optiml AG
Orca AG
OrientSwiss SA
Parashift AG
Partes AG
Paymash AG
Payrexx AG
Peax AG
Pelt8 AG
Petiole Asset Management AG
Pexapark AG
PI Digital AG
Pillar Project AG
Pocket App AG
Polixis SA
Portofino Technologies AG
Powerledger AG
Previse Systems AG
Privatam AG
Private Alpha Switzerland AG
Prodaft Sàrl
Purpose Group SA
PWN AG
Pyth Data Verein
Qashqade AG
QIO Quantitative Investment Office AG
Quantex AG
RA2 Tech SA
Radicant Bank AG
Radynamics Reto Steimen
Raized.AI AG
Raizers SA
Razz Finanzz AG
RedStone Distributed Data Association
Relai AG
Relio AG
RepRisk AG
Resolve SA
Retreeb SA
Rezonanz AG
Rigo Investment Sagl
Rivero AG
Robotic Ledger AG
Rockon Digital Evolution AG
Rulematch AG
Run my Accounts AG

Companies

S2I (Swiss Innovative Investment) SA
Safe Ökosystem Stiftung
Salus Alpha Financial Services (Europe) GmbH
Sanostro AG
Santiment GmbH
Savedroid FL GmbH
SBorg SA
Scandens AG
ScenarioX SA
Schlossberg&Co Technologies AG
Schuman Financial AG
Scrypt Digital Trading AG
Securosys SA
Self-Custody AG
Selma Finance AG
ShapeShift AG
Shift Crypto AG
Siebenberge GmbH
Silex Investment Partners SA
Simplewealth AG
SIX Digital Exchange AG
SIX Group AG
Smart Valor AG
SMAT SA
Solarsplit SA
Sonect AG
Sparkbase AG
Sparta Commodities SA
SPitch AG
SquaredData GmbH
Squirro AG
SR Saphirstein AG
Stableton Financial AG
Staxe AG
SteelHedge SA
Strique GmbH
STS Digital AG
SuperVX AG
Sustainaccount AG
Sway Finance SA
SweePay AG
SWIC Digital Gateway AG
Swise AG
Swiss Bitcoin Pay Sàrl
Swiss Crypto Advisors SA
Swiss Fin Lab GmbH
Swiss Fintech AG
Swiss Stablecoin AG
Swiss Stake AG
Swiss4.0 SA
Swissblock Technologies AG
SwissLending SA
SwissMetrics GmbH
SwissOne Capital AG
Swisspeers AG
SwissQuant Group AG
Swissquote Group Holding SA
Switzerlend AG
Sygnum Bank AG
Symbiotics Asset Management SA
SynoFin Risikomanagement Service AG
Syntheticus AG
SyntiFi GmbH
Systemcredit AG
T4 Capital AG
Tacans AG
Tangem AG
Tastier AG
Tatoshi AG
Taurus SA
Teamwork Management SA
Temenos AG
Teylor AG
The Ark Network AG
The Pay Company AG
TheScreener Investor Services AG
Ti&m AG
Tibc Sàrl
Tilbago AG
Tindeco Financial Services AG

Companies

Tiun AG
Token Flow Insights SA
Topaz Digital AG
Toucan Protocol Association
Tradeplus24 AG
Trechter.ch GmbH
Tree Project AG
Trendrating SA
Tresio AG
True Wealth AG
Trustwise.io AG
Twint AG
Ubinetic AG
UMushroom AG
Unblu Inc.
Unique AG
Utluna Solutions SA
Valora Schweiz AG
Värdex Suisse AG
Verified AG
Veritic AG
VertX IQ AG
Verve Capital Partners AG
Vestr AG
VIAC AG
VNX Commodities AG
Waka Payments AG
Wallee AG
WealthArc AG
WebAccountPlus (Holding) AG
WeCanGroup SA
WeGaw SA
Woolsocks AG
Wyden AG
Xentum AG
Xilva AG
Yainvest AG
Yapeal AG
Yeldo SA
Yokoy Schweiz AG
YouHodler SA
Yuh SA
Z22 Technologies AG
Zippy AG
Zurichberg AG

Appendix B

Appendix B lists the source and affiliation to one of the four STEP dimensions for each indicator of the FinTech hub ranking.

Publisher	Factor	Source	Dimension
2THINKNOW	Innovation Cities	Innovation Cities Index	Technological
App Annie Intelligence, International Monetary Fund	Mobile App Creation	World Economic Outlook Database October	Technological
AT Kearney	Global Cities Report	Global Cities Report	Social
CEOWORLD	Starting a Business	Entrepreneurship Index	Economic
Chainalysis	Crypto Adoption	Global Crypto Adoption Index	Technological
Clarivante Analytics	Scientific and Technical Publications	World Economic Outlook Database October	Technological
Germanwatch	Climate Policy	Climate Change Performance Index	Political/legal
GitHub	GitHub Commits	GitHub; United Nations, World Population Prospects	Technological
Global Entrepreneurship Research Association	Entrepreneurship Policies and Culture	Global Entrepreneurship Monitor	Economic
GSMA	Mobile Connectivity	Mobile Connectivity Index	Technological
Henley & Partners	Passport Acceptance	Henley & Partners Passport Index	Political/legal
IHS Markit	Political and Operational Stability	Country Risk Scores	Political/legal
	Software Spendings	Information and Communication Technology Database	Technological
IMD	Digital Competitiveness	IMD World Digital Competitiveness Ranking	Technological
	Smart City	Smart City Index	Technological
	Talent Competitiveness	IMD World Talent Ranking	Social
InterNations	Expat Ranking	Expat Insider Survey	Social
Insead, The Adecco Group, Google	Global Talent Competitiveness	Global Talent Competitiveness Index	Social
Institute for Economics and Peace	Global Peace	Vision of Humanity Global Peace Index	Political/legal
International Labour Organization	Female Employment Advanced Degree	ILOSTAT Annual Indicators	Social
	Knowledge-Intense Employment	ILOSTAT Database of Labour Statistics	Social

Publisher	Factor	Source	Dimension
International Monetary Fund	Foreign Direct Investments	International Financial Statistics and Balance of Payments databases	Economic
	Domestic Credit to Private Sector	International Financial Statistics and Balance of Payments databases	Economic
International Telecommunication Union	ICT Access	World Telecommunication/ICT Indicators Database	Technological
	ICT Use	World Telecommunication/ICT Indicators Database	Technological
	Cybersecurity - Technical Measures	Global Cybersecurity Index	Technological
Mercer	Cost of Living	Mercer's Cost of Living Ranking	Social
Mesopartner & Analyticar	Infrastructure Quality	Global Quality Infrastructure Index Report	Social
Mori Memorial Foundation	Economic Competitiveness	Global Power City Index	Economic
NUMBEO	Prices by City of Average Monthly Net Salary	Average Monthly Net Salary Index (After Tax) (Salaries And Financing) by City	Economic
	Purchasing Power	Local Purchasing Power Index by City	Economic
	Quality of Life	Quality of Life Index by City	Social
OECD	AI Skills Penetration	Global Partnership on Artificial Intelligence	Technological
	PISA Ranking	PISA Results	Social
Oxford Insights	Government AI Readiness	Government AI Readiness Index	Political/legal
Portulans Institute	Network Readiness	Network Readiness Index	Economic
QS Quacquarelli Symonds Ltd	University Ranking	QS World University Ranking, Top Universities	Social
Reporters without Borders	Press Freedom	World Press Freedom Index	Political/legal
Tax Justice Network Limited	Financial Secrecy	Financial Secrecy Index	Economic
The Heritage Foundation	Investment Restriction	Index of Economic Freedom	Political/legal
	Financial Restriction	Index of Economic Freedom	Political/legal

Publisher	Factor	Source	Dimension
The World Bank	Value of Stocks Traded	World Federation of Exchanges Database	Economic
	Domestic Market Scale	World Economic Outlook Database	Economic
	Applied Tariff Rates	World Development Indicators Database	Economic
	Gov. Effectiveness	Worldwide Governance Indicators	Political/legal
	Regulatory Quality	Worldwide Governance Indicators	Political/legal
The World Bank and Turku School of Economics	Logistics Performance	Logistics Performance Index	Social
Thomson Reuters	Joint Venture Deals	Thomson One Banker Private Equity, SDC Platinum Database	Economic
	Venture Capital Deals	Thomson One Banker Private Equity, SDC Platinum Database	Economic
Trading Economics	Corporate Tax Rates	List of Countries by Corporate Tax Rate	Political/legal
Transparency International	Corruption Perception	Corruption Perceptions Index	Political/legal
UNESCO Institute for Statistics	Expenditure on Education	UIS Online Database	Social
	R&D Expenditure	UIS Online Database Eurostat, Eurostat Database	Technological
	Government Funding per Secondary Student	UIS Online Database	Social
	Graduates in Science and Engineering	UIS Online Database	Social
	Tertiary Inbound Mobility	UIS Online Database	Social
	Pupil-Teacher Ratio	UIS Online Database	Social
	Research Talents in Businesses	UIS Online Database Eurostat, Eurostat Database	Technological
	Researchers	UIS Online Database Eurostat, Eurostat Database	Technological
	School Life Expectancy	UIS Online Database	Social
	Tertiary Enrolment	UIS Online Database	Social
United Nations Public Administration Network	E-Participation	e-Government Survey	Technological
	Gov. Online Services	e-Government Survey	Technological
World Economic Forum	Cluster Development	Executive Opinion Survey	Social
	University-Industry Collaboration	Executive Opinion Survey	Technological

Publisher	Factor	Source	Dimension
World Federation of Exchanges	Market Capitalisation	World Bank's World Development Indicators Database	Economic
World Intellectual Property Organization	Patents by Origin	World Economic Outlook Database	Technological
World Trade Organization	ICT Services Imports	Trade in Commercial Services Database	Technological
	IP Payments	Trade in Commercial Services Database	Technological
World Trade Organization and United Nations	High-Tech Imports	Comtrade Database	Technological
Z/Yen Group, China Development Institute	Global Financial Centres	Global Financial Centers Index	Economic

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