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IFZ/AMP Asset Management Study 2019

An Overview of Swiss Asset Management

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IFZ/AMP Asset Management Study 2019

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Preface

Accounting for about ten percent of the national GDP, the financial sector is a vital part of the Swiss economy. However, while Switzerland is well-known for private banking and wealth management services, asset management is establishing itself as an important sector for the financial center with a differentiating value proposition. Strong expertise in asset management is relevant for the Swiss economy since it helps to diversify and complete the financial services industry.

In this context the Asset Management Platform Switzerland, supported by the Swiss Funds and Asset Management Association (SFAMA), the Swiss Bankers Association (SBA), the Swiss Insurance Association (SIA) and a number of leading Swiss-based asset management firms, has the strategic goal to further develop the asset management industry in Switzerland into a leading global asset management hub.

This study gives an in-depth overview of the state and the developments of Swiss asset management and is divided into two parts. The first part starts with chapter 1, in which a definition of the term asset management is given and the methodological framework applied in this study is outlined. Chapter 2 examines the environment of the Swiss asset management industry. It starts with a qualitative description of the political/legal, economic, social, and technological developments relevant for the industry and ends with a quantitative ranking of the general conditions of globally leading asset management hubs. Based on survey data, chapter 3 provides a comprehensive analysis of the Swiss asset management industry and gives deeper insights into business models, market size, and sentiment among asset managers operating in Switzerland. In chapter 4, we focus on digital investment management and provide an analysis of the robo-advisory market in Switzerland. Finally, part one of this study ends with chapter 5 where a conclusion of the study's main findings is given.

In the second part of this study, the factsheets of 67 asset managers that participated in the survey are presented. These factsheets depicted in chapter 6 contain information on the companies' business models such as their value propositions, customer segments, and the asset management services offered.

At this point, we would like to thank all the parties who contributed to this study. A very special thanks goes to the Asset Management Platform Switzerland for their financial and content-related support. We would also like to express our appreciation to our partners Swiss Funds & Asset Management Association, Swiss Bankers Association, Swiss Insurance Association, and The Boston Consulting Group as well as to all the asset management companies that participated in our survey and provided valuable data and information. Last but not least, our thanks go to Nicola Louise Illi and Cyrill Schönenberger for their outstanding research assistance.

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Executive Summary

The financial sector is a strong pillar of the Swiss economy. While Switzerland is well-known as a world leading wealth management location, asset management is establishing itself as an important sector of the financial center with a differentiating value proposition. In this study, asset management is defined as the production and management of investment solutions in the form of collective investment schemes or individual, institutional mandates. The key role for the asset management industry is to provide a link between investors seeking appropriate savings vehicles and the financing needs of the real economy. Asset management firms have a fiduciary duty to act in the best interest of their clients and provide investment solutions that are in line with their clients' needs.

Based on a survey conducted among asset managers operating in Switzerland, the IFZ/AMP Asset Management Study 2019 provides an overview of the scope and breadth of the Swiss asset management industry, capturing the facts, current industry dynamics as well as the most important challenges and opportunities faced by Swiss-based asset managers. Moreover, in the context of a PEST analysis, the political, economic, social, and technological environment is analyzed with the aim to highlight the most important developments affecting the industry. An integral part of this study is a hub ranking, which assumes an international perspective in comparing the conditions in Switzerland to other asset management hubs globally.

Switzerland is a strong asset management hub and asset management matters for the economy
Switzerland offers favorable conditions for asset management companies to thrive. In particular, a stable and reliable political/legal environment and a strong education system with a highly skilled labor force are identified as key success factors. In terms of the market size, the total volume of assets managed by banks, fund management companies, securities dealers, and *FINMA*-supervised asset managers in Switzerland at the end of 2018 amounted to CHF 2'161 billion, which is approximately three times the size of the Swiss GDP and about twice the amount of assets held in Swiss pension schemes. Our estimates further indicate that about 9'900 jobs (3% year-on-year growth) are directly related to the asset management industry in Switzerland, while about 45'600 people are indirectly employed by the industry in the wider scope.

Though regulation is important, it is also costly
Regulatory compliance with international standards is a fundamental requirement to be able to export Swiss asset management abroad. Global markets offer great potential for Swiss asset management as significant growth is forecast for assets abroad. Swiss-based asset managers must be able to provide their products and services competitively out of Switzerland to other countries. In this context, 90 percent of the surveyed Swiss-based asset management firms evaluate the compliance of Swiss regulation with international regulatory standards as either important or very important for the exportability of Swiss asset management services and products. However, the results of the sentiment analysis among Swiss-based asset managers indicate that regulation is perceived as the most pressing challenge. In this context, about 70 percent of the respondents think that the relation between regulatory costs and regulatory benefits is unbalanced and a majority of the surveyed asset management firms consider regulatory costs to be high. Asset managers in Switzerland see potential for regulatory improvements in the abolishment of the stamp duty and in a reduction of the withholding tax.

Product specialization and sustainable investments are seen as opportunities for the Swiss asset management industry
In order to have a competitive advantage in the asset management industry it is important to choose a business model where the focus is either set on cost leadership (passive investments) or product specialization. Our analysis shows that Swiss-based asset managers see the largest opportunities in product specialization and sustainable investments and the least opportunities in passive investments. From a strategic perspective, this implies that Swiss asset management firms are positioned as specialists with clearly defined core competencies.

Active management dominates the business model and the asset allocation of Swiss-based asset management firms

About 70 percent of the assets managed in Switzerland are actively managed and 30 percent are passively managed. Among discretionary mandates, about two thirds of the assets are actively managed while for collective investment schemes about 80 percent of the assets under management are managed using an active approach. These numbers corroborate the finding from the sentiment analysis, that Swiss-based asset managers focus on specialized, actively managed products in order to establish a competitive advantage. Moreover, asset managers in Switzerland have a strong exposure to alternative asset classes, which very often follow active portfolio management strategies.

Robo-advisory is not yet an important distribution channel for Swiss-based asset managers

Robo-advisors are potentially an interesting distribution channel for asset management companies. However, despite the growing importance of digital investment management, the robo-advisory market in Switzerland has not yet gained momentum. A major drawback of Swiss robo-advisors is their high costs. With an average total fee (all-in fee plus product costs) of 0.95 percent, Swiss robo-advisors are substantially more expensive than their US peers. Apart from a generally higher cost environment in the Swiss market, where both all-in fees as well as product costs are twice as high as in the US, Swiss robo-advisors do not benefit from the economies of scale necessary to further reduce fees or enhance profitability in the robo-advisory market. Robo-advisors potentially offer asset managers access to new technologies and would enhance their distribution channels.

1. Definition & Framework of Asset Management

By Thomas Ankenbrand & Jürg Fausch, Institute of Financial Services Zug IFZ

This introductory chapter describes the methodologies and frameworks used to analyze the asset management industry in Switzerland. For this purpose, we first provide a definition of the term "asset management" in order to determine the scope of the study. Second, the PEST approach, used for evaluating the macro-environmental factors that affect the asset management industry, is introduced. In section three, we illustrate the business model canvas used to describe asset management as a business model. Finally, section four of this chapter describes the methodological framework applied to evaluate the sentiment of Swiss-based asset management firms towards current opportunities and challenges in the industry. In the context of this analysis, a special focus is put on regulation.

1.1. Definition of Asset Management

In this study we define asset management as follows:

> Asset management is the production and management of investment solutions in the form of collective investment schemes or individual, institutional mandates.

A key feature of this definition is the clear focus on institutional clients such as pension funds, insurance companies, sovereign wealth funds or corporations. It also includes the management of funds that are pooled in collective investments schemes (CIS), especially investment funds and investment foundations. However, wealth management firms and private banks are excluded from this study's definition of asset management. The main reason for this is that the services provided by these firms seek to lay a significant focus on the fulfillment of a private client's financial needs. Based on the definition of asset management outlined above, the main aim of this study is to analyze the Swiss asset management industry with a clear focus on the production side. The requirement for all in-scope asset management firms is that Switzerland constitutes the physical location where investment decisions are made and the corresponding portfolios are managed. The value proposition of an asset management firm is thus the management of collective investment schemes and institutional discretionary mandates for a fee, on behalf and in the best interest of their clients. This implies asset managers have an intermediary function with a fiduciary responsibility. In order to fulfill this responsibility, asset management firms develop an investment strategy and asset allocation that is consistent with the investment goals and risk preferences of their clients. Hence, the primary objective of an asset manager is to maximize returns at an appropriate and predefined level of risk. To achieve this, asset managers conduct research on macroeconomic developments, financial markets, industries, and individual companies to identify profitable and sustainable investment opportunities. In order to implement an investment strategy, asset managers have access to a broad investment universe across public and private markets. Among others, this universe includes traditional asset classes such as stocks and bonds on the one hand, but also alternative asset classes like private equity or hedge funds on the other hand.

1.2. PEST-Approach

A widely applied and established methodology to analyze the macro-environmental factors surrounding a specific industry is the PEST-approach. PEST is an acronym for political, economic, social, and technological factors and represents the business environment a firm or industry operates in. More specifically, in an asset management context the political/legal dimension covers the national and international regulatory framework, the reliability of the political system, tax laws or global market access. The main focus of the economic dimension is the current macroeconomic environment, the stance of monetary policy, the developments in major financial markets, as well as the savings behavior in the economy. The social dimension deals with customer preferences, demographic developments, as well as the availability of talent and skill. The final dimension of the PEST analysis concerns the technological environment. The core of this dimension is to describe the role of technology in asset management. This includes describing the financial market infrastructure and illustrating how technological innovation affects the asset management industry.

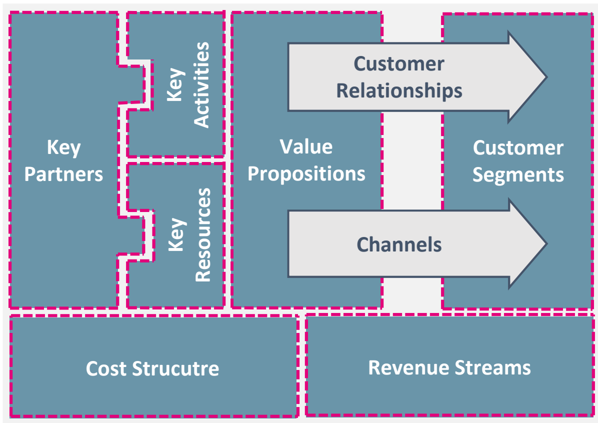

Figure 1.1: Business model canvas (Osterwalder & Pigneur, 2010)

1.3. Business Model Canvas

The main idea of the business model canvas is to describe the rationale of how an organization creates, delivers, and captures value (Osterwalder and Pigneur, 2010). It consists of a visual representation of the company's business model and is a widely established strategic management tool that helps to provide an overview of any business structure. The business model canvas is an integral approach to describe and define a business model. This means that not merely one specific aspect of a business model is considered, but a more holistic approach is adopted to cover all elements that are required for the operability of a company. More specifically, the business model canvas consists of nine building blocks, which aim to show the logic and the strategy of a company's business model.

The nine blocks of the business model canvas represent the four major aspects of every business: customer, offer, infrastructure, and financial viability. In

Customer Segment		Description
Product Group	**Discretionary Mandate**	Mandate given by a client to an institute to manage a portfolio of assets and execute orders in compliance with a predefined set of rules and principles at the institute's sole and full discretion in order to achieve the predefined investment objectives.
	Collective Investment Scheme	Collective investment scheme (CIS) as governed by Swiss or foreign law on collective investment schemes. An exchange traded fund is not considered a CIS in the survey.
	Exchange Traded Fund	Marketable security that tracks a commodity, bond, or a reference portfolio, often an index fund. An ETF trades like a common stock on a stock exchange. In this survey, an ETF shall be distinguished from CIS.
Type	**Private**	Beneficial Owner that entered a mandate contract or invested in a CIS or ETF and is a private person.
	Institutional	Beneficial Owner that entered a mandate contract or invested in a CIS or ETF and is a legal entity or institution.
Geography	**Switzerland**	The institute focuses on serving customers in Switzerland.
	International	The institute focuses on serving international customers (Switzerland included).

Table 1.1: Customer segments of asset management companies

order to describe the business models of asset managers in Switzerland, seven of the building blocks, which are colored dark blue and framed with red dashed lines in figure 1.1, are incorporated in the corresponding company factsheet. Since the focus of this study is the management of financial products in Switzerland, the distribution view is only of marginal importance. This implies that the building blocks "Channels" and "Customer Relationships", which account for the way the company interacts and communicates with its customer segments, are excluded from the analysis. However, all other building blocks which are essential to analyze the business model of asset management from a production view, are described in the following.

Customer Segments

The building block "Customer Segments" (see table 1.1) is key to every business model and defines the customer base the asset management firms wants to offer its products and services to. An asset manager groups its customers into distinct segments with common characteristics in order to better satisfy their specific needs. In this context, we distinguish among three different aspects: a segmentation in terms of product groups, i.e., discretionary mandate, collective investment scheme or exchange traded fund, a segmentation according to the type of customer, i.e., private or institutional, and a geographical segmentation, i.e., national or international.

Value Propositions

The "Value Propositions" building block is the core of the business model canvas and describes the bundle of products and services offered to create value and serve customer needs. These products and services are the main reasons why customers are interested in a company. In terms of products, the solutions listed in table 1.2 are offered by asset management firms.

Product	Description
Money Market	Cash or cash equivalents with stated maturity of one year or less.
Bond	Fixed income securities with maturity of more than one year.
Equity	Investments in the stock market.
Multi-Asset	Investments in a combination of equity, fixed income, and other asset classes.
Commodity	Investments in commodities, directly or indirectly via derivatives.
Real Estate	Investments in real estate directly or indirectly.
Infrastructure	Investments in infrastructure projects.
Private Equity	Investments in companies generally not traded and exhibiting equity-like features.
Private Debt	Investments in the private lending market by the provision of loans by non-banks without the involvement of the capital market.
Hedge Fund	Investments in a variety of assets, often with aggressive and skill-based investment strategies.
ILS Fund	Investment in insurance linked securities (ILS) including catastrophe (CAT) bonds.
Other	Investments in other asset classes not attributable to the above.

Table 1.2: Value propositions in terms of asset management companies

Value Proposition		Description
	Active Portfolio Management	The company follows an active investment strategy with the aim to generate a positive alpha by outperforming a reference portfolio (benchmark).
	Passive Portfolio Management	The company follows a passive investment strategy by creating a portfolio allocation that is the same as or similar to the reference portfolio. The purpose of passive portfolio management is to generate a return that is the same as the chosen reference portfolio.

Table 1.3: Value propositions in terms of investment strategy of asset management companies

Revenue Stream	Description
Management fee	Proportional to the value of assets being managed and charges are typically expressed as a percentage of assets under management.
Performance fee	The asset management firm is paid contingent on some measure of the underlying performance of their service.

Table 1.4: Revenue sources of asset management companies

Moreover, the value proposition of asset management is also separated with respect to the chosen investment approach where a distinction between active and passive investment management is made (see table 1.3).

Revenue Streams

The building block "Revenue Streams" (see table 1.4) describes how the company earns money from each customer segment and is therefore a key indicator of the success of a business model. In the asset management industry, revenues are generated by fees. In general, there are two types of fees that asset managers charge their customers. The first source are investment management fees, which are calculated in proportion to the value of the assets being managed. These fees are typically expressed as a percentage of assets under management. The second source of revenue are performance fees, where the asset management firm is paid contingent on some measure of the underlying performance of their service. However, it is important to note that a significant part of these fees is used to cover distribution and administration expenses. For example, on average 60 percent of the management fee of an actively managed fund consists of distribution fees. Ten percent are related to administration and 30 percent to asset management (Fuchs, 2012). In asset management, the revenues in a fee-based compensation model depend fully on the assets under management. This implies that a decline in these assets due to client withdrawals or adverse market movements results in lower revenues for the corresponding asset management firm.

Key Activities

In order to create value for the customer, an asset management firm needs to have a variety of pro-

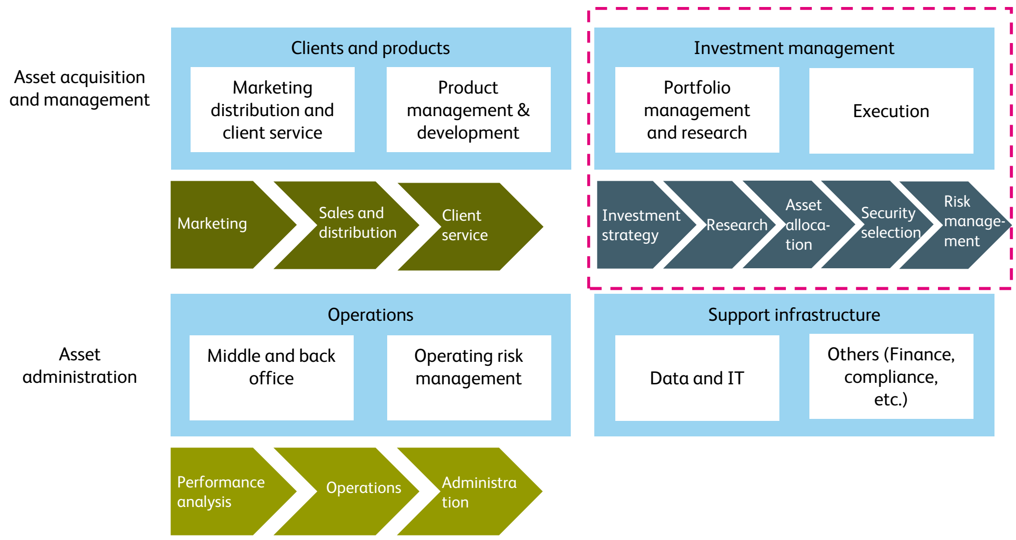

Figure 1.2: Asset management operating model (based on Oliver Wyman, 2015)

Key Activities		Description
	Investment Strategy	Development of an investment strategy which can be based on an active or passive approach.
	Research	Economic and financial market research to provide fundamental information for investment decisions.
	Asset Allocation	Allocation of funds to different asset classes.
	Security Selection	Security selection is the process of implementing the asset allocation by determining which specific securities are included in the portfolio.
	Risk Management	Forecast and evaluation of risks that have an adverse impact on the assets under management together with the identification of procedures to avoid or minimize their impact on the portfolio.

Table 1.5: Key activities of asset management companies

cesses and activities to operate its business successfully and generate revenue streams. The building block "Key Activities" emphasizes the most important activities the company performs in order to deliver its value proposition.

The key activities in asset management are derived from the asset management operating model illustrated in figure 1.2. A more detailed description of each of these key activities is given in table 1.5.

Key Resources
The building block "Key Resources" constitutes the foundation for value creation and describes the company's most important resources required to make a business model work. These resources are needed to create a value proposition, reach markets, maintain customer relationships, and earn revenues. The key resource in asset management are employees. In this study, we distinguish between employees involved in supportive tasks or core asset management tasks. Supportive tasks to asset management include, sales, middle office, compliance, administration and other services (e.g., Human Resources (HR), Information Technology (IT) etc.), while core tasks in asset management involve the investment strategy, investment research, asset allocation, security selection, and risk management (see table 1.6).

Key Partners
An important element of any business model is the presence of "Key Partners". Some of these partnerships are essential to create and deliver the value proposition. There is a variety of reasons why a company may seek to enter a partnership or strategic alliance. Risk reduction, business model optimization or the acquisition of resources are possible motives. For an asset management firm operating in a business-to-business context, distribution partners like private banks and wealth management firms, insurance companies, and pensions funds are identified as key partners.

Cost Structure
The cost structure reflects all resulting costs that are generated through the other building blocks in the business model canvas. The most important cost blocks for any asset management firm are related to staff expenses, administration costs (office, IT infrastructure, marketing costs), and distribution fees.

Key Resources		Description
	FTE Core Task	Indicates how many human resources in terms of full time equivalents (FTE) are currently deployed to perform a core asset management task, i.e., investment strategy, investment research, asset allocation, security selection, and risk management.
	FTE Supportive Task	Indicates how many human resources in terms of full time equivalents (FTE) are currently deployed to perform a supportive asset management task, i.e., sales, middle office, compliance, administration, and other services (e.g., HR, IT) etc.

Table 1.6: Key resources of asset management companies

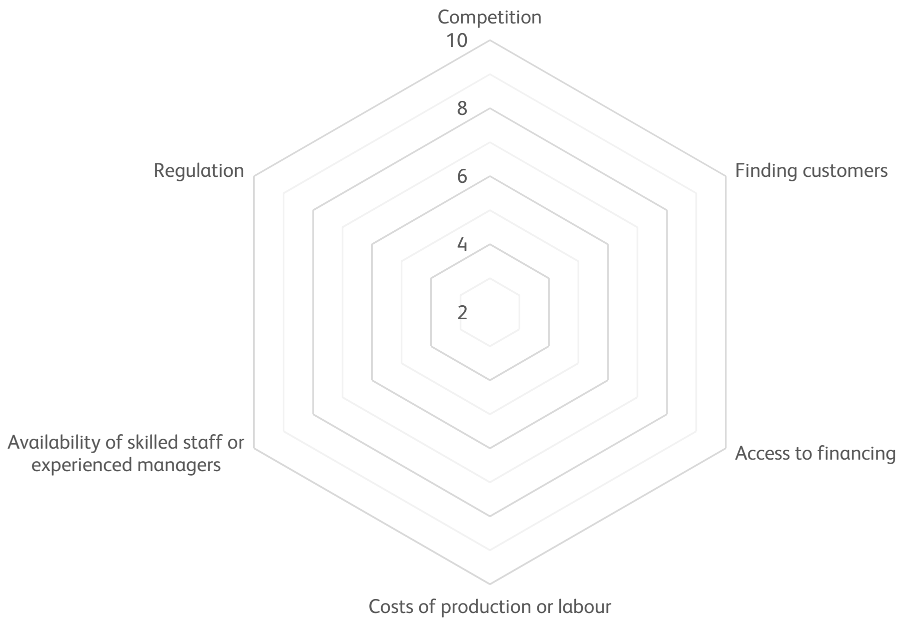

Figure 1.3: Challenges for the Swiss Asset Management industry

1.4. Sentiment Analysis of Asset Management Companies

To study the opportunities and challenges faced by the asset management industry in Switzerland we conduct a sentiment analysis. For the first part of this analysis, we study the challenges faced by asset managers using a sentiment questionnaire, which is based on the Survey on the Access to Finance of Enterprises in the Euro Area. This survey is conducted biannually by the *European Central Bank* (ECB) among the member states of the *European Union*. The questionnaire includes the six challenges depicted in figure 1.3.

In this context, all the in-scope[1] asset management companies were asked to evaluate each of the corresponding challenges on a scale from 1 (not pressing) to 10 (extremely pressing). The second part of the sentiment analysis consists of evaluating the opportunities the asset management industry has (see figure 1.4). For consistency reasons, we apply the same approach used to evaluate the industry challenges, meaning all the surveyed asset managers were asked to evaluate each of the following opportunities on a scale from 1 (not important) to 10 (extremely important).

The third and final part of the sentiment analysis is focused on regulation. This is driven by the fact that in the IFZ/AMP Asset Management Study 2018 the sentiment analysis among Swiss-based asset managers revealed regulation as the most pressing challenge. In this context, an integral goal of the current sentiment analysis is to shed some light on the question as to what the specific regulatory concerns are. For this a questionnaire based on a 5-point scale with 10 items was used. An item is a statement that the respondent is asked to evaluate. Very often in social science research a Likert scale from 1 (strongly disagree) to 5 (strongly agree) is used. However, it is important to note that this type of scale suffers from acquiescence bias, which means that respondents to a survey have a tendency to agree with all the statements regardless of their content (Billiet & McClen-

[1] In-scope asset management firms consist of *FINMA* authorized banks and securities dealers, fund management companies, as well as asset managers of collective investment schemes licencsed under the Collective Investment Scheme Act (CISA), which consider asset management as their main value proposition and are in line with our definition of asset management outlined in section 1.1. Further details about the set of surveyed companies are provided in section 3.1.

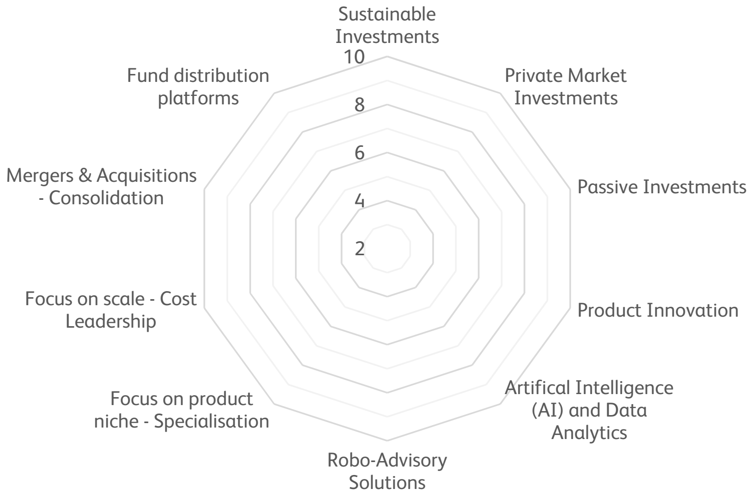

Figure 1.4: Opportunities for the Swiss Asset Management industry

don, 2000). In order to avoid this bias we use item specific (IS) response options for this part of the sentiment analysis. An IS-type scale is a much more direct way of collecting an opinion from individuals, as opposed to using an agree/disagree scale. Moreover, it has been shown that the quality (measured by reliability and validity) of item specific response scales are higher than the quality of agree/disagree scales (Saris et al., 2010).

2. The Swiss Asset Management Environment

2.1. Political & Legal Environment

By Markus Fuchs & Diana Imbach Haumüller, Swiss Funds & Asset Management Association

2.1.1. Introduction

A reliable political and regulatory environment is essential for an internationally recognized financial center. As an international industry, asset management is particularly dependent on recognized standards and a sustainable regulatory framework. In this chapter we provide a brief overview of the most important aspects in the political and legal dimension of the PEST-analysis. The main focus of this part of the study lies on the regulatory and supervisory aspects related to Swiss asset management.

2.1.2. Regulation as a Key Factor for Exportability

2.1.2.1. International Rules for International Markets

As a small economy with a strong financial center, Switzerland depends on its financial service providers being able to offer their products and services abroad too. In principle, this applies to all financial services providers such as banks and asset managers. However, it is particularly relevant for asset managers as in this particular area, the potential for growth within Switzerland is limited. In contrast, global growth forecasts are considerably higher[2]. Therefore, it is crucial for Swiss-based asset managers to be able to provide their services not only nationally, but also on a cross border basis to clients abroad. The exportability of asset management is a vital precondition for a strong Swiss asset management industry.

A basic prerequisite for the exportability of asset management services is the compliance with internationally accepted standards. Regulation and, in particular, appropriate rules of conduct and a reliable supervisory regime are becoming increasingly important at an international level. On the one hand, in the selection process of an asset manager, institutional clients such as pension funds or fund providers, are also increasingly focusing on internal governance and the applicable regulatory framework as a part of their internal due diligence processes. Therefore, a weak regulatory framework can constitute a competitive disadvantage for asset managers. On the other hand, corresponding requirements for "equivalent" regulation and memoranda of understanding (MoU) between supervisory authorities, which are generally based on similar requirements, also play an important role[3].

Therefore, if the Swiss financial center strives to continue to be a strong international asset management hub, there is no way around implementing international standards in Swiss regulation. This is one of the main reasons why in March 2012, the *Federal Council* commissioned the *Federal Department of Finance* (FDF) with the structuring of a legal basis for the cross-sector regulation of financial products and services and their distribution[4]. This project lead to the new Financial Services Act (FinSA) and the Financial Institutions Act (FinIA) which were approved by the Swiss parliament on June 15, 2018[5]. Currently, the new regulation is expected to enter into force on January 1, 2020.[6]

2.1.2.2. Cross Border Regimes Abroad

Swiss asset managers who seek to provide services in other jurisdictions are essentially faced with three different regulatory regimes: the EU/EEA system, the US regime, and the Asian regimes. The EU/EEA system is based on a high degree of harmonization and cooperation, which allows for efficient access across borders given that certain conditions are fulfilled. On the contrary, the US regime does not allow for access based on a certain degree of equivalence, but rather requires a registration with the national supervisory authority. The Asian system lies between the two and requires cooperation with the authorities and/or local presence as well as additional supervisory parameters for access to the local market.

A convergence towards the EU/EEA regulation with regards to the possibility of a non-discriminatory market access is essential and makes sense from an economic

[2] See BCG (2018) for further details.
[3] See section 2.1.2.2
[4] See current status of the legislatory project under: <https://www.efd.admin.ch/efd/en/home/themen/wirtschaft--waehrung--finanzplatz/finanzmarktpolitik/fidleg-finig/fb-fidleg-finig.html> (as of May 20, 2019).
[5] For further details see section 2.1.3.2.
[6] As this schedule is not yet final, a delay of the entrance of force is still possible.

and commercial perspective. For the asset management industry, this implies that Swiss-based asset managers should be able to manage EU-based collective investment schemes, provide asset management services for pension funds, and sell Swiss financial products in the EU. A punctual and static equivalence would probably lead to a state of permanent amendments and negotiations. Thus, Switzerland should strive for an integrated solution, which should at the least provide a clear mechanism for continuous updates and ensure equivalence. In the best case, it should provide complete access to the free movement of services.

For the US market, it is particularly important for Switzerland to avoid any negative listings. For access in Hong Kong, the recognition by the *Swiss Financial Market Supervisory Authority* (FINMA) is a requirement. Of importance in this context therefore, is the recently achieved equivalence of the inspection regime. In addition, a sustainable process for the exchange of information would have to be established. The access to Singapore is to be achieved by bilateral agreements. In line with the national guidelines, it will be hard to avoid the requirement for physical local presence, but at least access for Swiss asset managers should be able to be facilitated and the process accelerated.

Some jurisdictions (USA, Hong Kong, Singapore) do not differentiate between asset management and advisory services from a regulatory perspective, and thus attach the same legal consequences to both of them. Others, in particular the European system (to which the Swiss system was made compatible with various guidelines such as the Market in Financial Instruments Directive (MiFID)), differentiate between the two services and apply the element of discretion, but demand prudential supervision as soon as, for example, the border of MiFID relevant services is crossed. To enable market access for Swiss providers who are subject to the condition of equivalence, the creation of a licensing system is required.

Jurisdictions with policies strongly focused on asset management have created a balance between investor protection and the encouragement of competition within their supervisory approach. Whether *FINMA,* which has an explicit mandate to encourage competition within the domestic market, should be equipped to deal with the needs of investors, is part of an ongoing controversial debate. Increasingly, a trend towards a system of diversified licensing and supervisory practice, to support risk and protection needs, is being observed. Switzerland also pursues this approach with the foreseen Financial Institutions Act. Any loopholes or possible "Swiss finish"-approaches within the Swiss asset management regulation framework should be revised. In addition, Switzerland should strive to develop a coordinated strategy with the inclusion of all stakeholders to promote the country internationally as a hub for asset management services.

Also, a continuous and binding dialogue between the authorities and the asset management industry is vital in order to ensure that the interests of the industry are taken into account and that developments, as well as experience, are integrated into the regulatory and supervisory process. The practical experiences made in the last few years support this claim. Never before has asset management received such a high degree of attention from the public, politics, and media as it does today.

2.1.2.3. Standard Setting on an International Level

A sustainable framework is vital, especially for the implementation in and compliance of international standards with the regulatory and supervisory system. In the last few years, many new standards were introduced abroad. Switzerland, as a diversified global financial center, was strongly affected by this trend. Important decisions on economic cooperation, the development of the financial system, and the regulation of financial markets are made within standard-setting organizations like the *OECD, G20, FSB,* and *IOSCO*. It is important for Switzerland to have access to any of those organizations and to be able to participate actively in the development of these rules and standards. Moreover, for Switzerland as a financial center it is fundamental to provide its know-how, in order to contribute towards the design of a stable and open global financial system. This is a significant condition for sustainable growth, which should be accompanied and supported by political efforts.

2.1.3. Overview of Asset Management Regulation

2.1.3.1. Current Regulatory Framework

Today, financial market regulation has a primarily sectoral structure. The provisions regulating the management and distribution of collective investment schemes are primarily governed by the Collective Investment Schemes Act (CISA)[7] and its implementing ordinance CISO[8] and CISO-FINMA[9], *FINMA* circulars[10], and *SFAMA* self-regulation[11]. The same sectoral structure applies to the regulation of banks and securities dealers, which are governed by their specific acts, ordinances, *FINMA-,* and self-regulation. A special case is constituted by the so called independent asset managers (IAM) which, unlike all other financial service providers managing client assets, are not subject to prudential supervision today. Only in the area of money laundering prevention is there some mandatory supervision to a certain extent. In the area of conduct rules, self-regulation typically ensures a minimum standard for these service providers[12, 13].

In addition, regulation on customer protection in the financial services sector is also derived from general contract law, practice of authorities and courts, or from the interpretation of doctrine. Hence, the regulation in this area is highly fragmented today. This sometimes leads to legal uncertainty for financial service providers and their customers. The goal to implement uniform rules for the same services (“same business same rules”) and to thus achieve a level playing field between different types of providers such as banks, asset managers or advisors, was another reason which triggered the new FinSA and FinIA.

2.1.3.2. Outlook on Future Regulatory Framework

As outlined under section 2.1.2, a basic condition for the export of Swiss financial services and products is that the Swiss financial regulation is compliant with international standards. This was one of the main reasons why the *Federal Council* initiated, and the Swiss parliament approved, the new FinsA und FinIA. With the new regulation, the existing financial market law architecture will be subject to sweeping reforms. With the FinSA and the FinIA, the current regulatory framework will be transformed from today’s sectoral structure into a horizontal structure. This means, in particular, that the FinSA will introduce uniform cross-sector regulations for the provision of all financial services and the offering of financial instruments. Hence, provisions at the point of sale regarding asset management services, such as client segmentation (art. 4 seq.), conduct rules concerning the duty of providing clients with information (art. 8 seqq.), appropriateness and suitability tests (art. 10 seqq.), documentation requirement and the duty to render account (art. 15 seqq.) or the regulation on conflicts of interest (Art. 25 seqq.), or the registration of services providers who are not prudentially supervised by *FINMA* (art. 28 seqq.), are governed by the FinSA.

Besides adequate rules of conduct, a further essential standard is the supervision of all asset managers, which is to be ensured by the Financial Institutions Act (FinIA). With the new act, all financial services providers who render asset management services to clients require a *FINMA* license and will be subject to ongoing supervision. It is also interesting to note that with the FinIA, external managers of pension assets will be subject to the same legal requirements regarding authorization and supervision as fund managers (art. 24 seqq.). Today, asset managers of pension funds are not subject to prudential supervision. They are considered IAM, but have to register with the *Supervisory Commission for Occupational Pension Funds.*

Under the new regime, product or client specific regulation will continue to exist, but only to a limited extent. One example are fund specific provisions in the CISA, governing product specific requirements such as conduct rules within the product (art. 20 new CISA) or rules for the valuation of assets. Such rules will generally not apply to conduct at the point of sale, as this area is covered by the new FinSA only. However, if, for instance, a fund management company delegates asset management functions to another asset manager, depending on the different tasks, both regimes should be considered. Another example for specific regulation is the area of pension funds. Also, the Ordinance on occupational old-age, survivors' and invalid-

[7] Systematic collection of laws in Switzerland (SC) 951.31.
[8] SC 951.311.
[9] SC 951.312.
[10] For an extensive overview see website FINMA: <https://www.finma.ch/de/dokumentation/rundschreiben/> (as of May 22, 2019).
[11] For an extensice overview on SFAMA self-regulations see website SFAMA: <https://www.sfama.ch/de/selbstregulierung-musterdokumente> (as of May 22, 2019).
[12] See e.g. Swiss Banking, Portfolio Management Guidelines, Basel 2017.
[13] The lack of supervision of IAM was another reason why the Federal Council initiated the FinSA/FinIA-regulation.

ity insurance (BVV2) will continue to provide for specific requirements for the management of pension funds[14].

2.1.4. Conclusion

Many trade associations currently demand cutbacks to the waves of regulation and more power to act internationally. It is important to realize that with the new FinSA/FinIA regulatory framework Switzerland is not giving up a competitive advantage, but rather is preventing the risk of being considered a dubious financial center without the respective regulation. But even if the regulatory preconditions are set for a strong asset management industry, it is clear that other aspects are equally important for the success of Swiss-based asset managers. One of those topics are Swiss withholding tax and stamp duty which are particularly crucial for Swiss-based managers of collective investment schemes in Switzerland or abroad. Against this background it is important to emphasize, that an ongoing dialog within the industry but also with *FINMA*, the *Federal Administration*, and the Swiss parliament is crucial to create an even better understanding of the needs of the industry and its potential to make a major contribution to the creation of value in Switzerland.

2.2. Economic Environment

By Jürg Fausch,
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In this section, we give an overview about the role asset managers take in the economy and illustrate the macroeconomic environment. We show that the high savings rate in Switzerland drives wealth creation and builds the foundation for a strong home market with a broad variety of asset management products and services provided by Swiss-based asset managers. Moreover, a short outlook with respect to business cycle perspectives, monetary policy and financial markets is given.

2.2.1. Asset Management in the Economy

Asset management is a core pillar of the financial sector and of fundamental importance for the real economy. The key role of the asset management industry is to provide a link between investors seeking appropriate savings vehicles and the financing needs of the real economy. Asset managers contribute to an efficient allocation of capital, by allocating these funds to those companies that have productive investment opportunities, but need additional funding to realize new investments. In this intermediary role, asset managers stimulate long-term economic growth and create jobs. Moreover, asset managers are one of the most important providers of liquidity, which is an essential characteristic of well-functioning financial markets. Unlike banks, asset management firms do not perform intermediation on their balance sheets, which implies that capital requirements for asset managers are considerably lower compared to those in the banking business.

Asset management companies have a fiduciary duty to act in the best interests of their clients and provide investments solutions that are in line with their clients' needs. The main objective in this context is to develop and implement an investment strategy that maximizes returns at an appropriate and predefined level of risk. In order to reach this objective, asset managers allocate capital to various asset classes, products and markets, identify investment opportunities, and construct portfolios. Moreover, asset managers take a key responsibility in risk management and lower investment risk by monitoring current developments in industries, countries, and regions. In this role of acquiring and processing information, asset managers overcome problems arising from asymmetric information and contribute substantially to making financial markets efficient (Gârleanu and Pedersen, 2018). Compared to the individual investor, asset management firms are able to achieve this at much lower costs due to economies of scale.

[14] SC 831.441.1.

The financial sector is a strong pillar of the Swiss economy. Both financial and insurance services contribute substantially to the GDP. In 2018, the financial center reported gross value creation of around CHF 63 billion which corresponds to a share of 9.1 percent of Switzerland's total economic output. A comparison between major global financial centers reveals that the proportion of GDP from the financial sector is only larger in Singapore (12.2%) and Luxembourg (28.1%) but exceeds those in the USA (7.5%), the UK (6.9%), and Germany (3.7%) substantially (SIF, 2019). In terms of employment, as of the end of 2018, the Swiss financial center employs about 204'300 full-time equivalents (FTEs), including activities auxiliary to financial services and insurance activities. In relative terms, this implies that around 5.5 percent of overall employment in Switzerland can be attributed to the financial sector (Federal Statistical Office FSO, 2019a).

An important sub-sector of the Swiss financial center is the asset management industry. Our estimates indicate that asset managers based in Switzerland manage more than CHF 2 trillion on behalf of domestic and foreign customers.[15] This is approximately three times the size of the Swiss GDP[16] and about twice the amount of assets held in Swiss pension schemes.[17] In terms of employment, about 25 percent of total employment in the financial sector can be attributed to asset management.[18] Moreover, asset managers contribute significantly to cantonal and federal tax revenues due to the significant employment in the industry, as well as the high median salaries paid to employees in the financial sector.[19] Moreover, the asset management industry itself contributes to tax revenues in Switzerland in the form of corporate taxes. In terms of profitability, asset management is a very attractive market. A recent *zeb* study, using data for the United Kingdom, reveals that operating margins[20] of 37 percent are higher in asset management than in other sectors of the financial services industry. In comparison, the banking sector has an operating margin of 34 percent, while the operating margin in the insurance industry is only four percent (zeb, 2019). However, the asset management industry is facing several challenges that put profit margins under pressure. Among others, competition from passive investments and FinTech start-ups, operating under low-cost technology driven business models, put downward pressure on fees while the implementation of new regulatory requirements or the process of digital transformation puts upward pressure on costs. Moreover, a key characteristic of the asset management market is a strong industry concentration. Globally, the 40 largest asset management firms account for 53 percent of total assets under management (zeb, 2019).

In an international comparison a variety of characteristics differentiate Switzerland from other international asset management hubs. Driven by a high savings rate and a large volume of pension assets, the domestic market is large and liberal laws make it relatively easy for foreign asset management companies to enter the market. This means that the array of investment products and services offered to investors in Switzerland is broad and diverse, which has a positive impact in enhancing Switzerland's appeal as an asset management hub for international investors. Moreover, Switzerland has a long history in wealth management and is ranked the largest and most competitive wealth management center in the world (Deloitte, 2018). From an asset manager's perspective, the wealth management industry is an important intermediary in distributing asset management products and services. In terms of assets under management (AuM) it is striking that Swiss-based asset management firms manage greater volumes of investments in alternative asset classes and passive products than the global averages (Swiss Bankers Association and BCG, 2018). This observation could be interpreted as an indication that asset management

[15] Section 3.2 gives a detailed overview of the market size.
[16] According to SECO data the GDP in Switzerland was CHF 689'898 million at the end of 2018.
[17] According to a recent study by Willis Towers Watson (2019) autonomous Swiss pensions funds managed approximately CHF 893 billion in asset at the end of 2018, which corresponds to 126 percent of the Swiss GDP.
[18] We estimate that the institutional asset management industry in Switzerland employs 55'500 FTEs whereof 8'337 FTEs are directly employed and 45'600 are indirectly employed.
[19] Using the most recent wage level data from 2016, the median salary in the financial and insurance sector was the highest among all sectors in the Swiss economy (Federal Statistical Office FSO, 2019b).
[20] In the zeb (2019) study operating margin is defined as operating profit divided by total revenue. Operating profit is defined as revenue less operating costs (staff plus non-staff cost) or earnings before interest and tax (EBIT). FTSE all share; 10y operating margin.

firms in Switzerland tend either to focus on scale (e.g. passive products) or specialized niche products (alternative products). From a strategic point of view, a focus on low margin passive products with high volumes (cost leadership) or sophisticated high margin niche products with low volumes (specialist, alpha generation) are identified as the favorable operating models for the future (Bain & Company, 2017). In this context, the asset management industry in Switzerland seems to be well aligned with these approaches.

2.2.2. Saving

As illustrated before a key function of the asset management industry is to channel savings into investments, which facilitates the accumulation of capital and the production of goods and services in the economy. Following the definition of the *OECD*, net household saving is defined as the subtraction of household consumption expenditure from household disposable income, plus the change in net equity of households in pension funds. The most recent available estimates for the year 2016 indicate that Swiss households save about 19 percent of disposable income (net household saving relative to disposable income). Among all *OECD* countries, Switzerland has the highest household savings rate. Net lending by Swiss households, defined as the difference between net acquisition of financial assets and net incurrence of liabilities, is the highest among the *OECD* countries at about eleven percent of GDP, and is only exceeded by China. The time series development of household savings relative to disposable income (from 1995 to 2017) and net lending relative to GDP (from 1995 to 2016) in Switzerland is illustrated in figure 2.1.

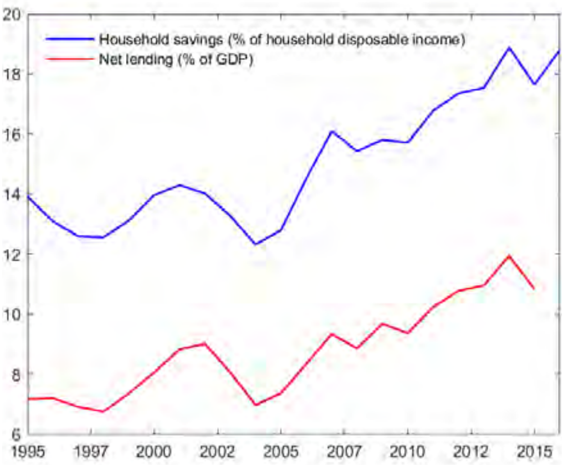

Figure 2.1: Household savings and net lending in Switzerland. (Source: OECD)

The high propensity of Swiss households to save is also reflected in a large current account surplus of around ten percent of GDP. Standard macroeconomic models consistent with the Life-Cycle/Permanent Income hypothesis (Modigliani and Brumberg, 1954; Friedman, 1957) indicate that households use savings to smooth consumption over time. This implies that a positive level of savings is motivated by the fact that households rationally expect a decline in future income. Consumption behavior consistent with these model implications requires that aggregate household savings in an economy are driven by common temporary shocks to income. However, time series data for Switzerland indicates that over the past two decades average household savings were equivalent to 15 percent of GDP with a standard deviation of two percent, which means the high level of household savings is not a temporary phenomenon. A first potential explanation for the high level of savings in Switzerland is attributable to demographic developments. Based on data from the household budget survey, the monthly Swiss households' gross incomes for those individuals within the age group of 45 to 54, peak at CHF 12'454 (Federal Statistical Office FSO, 2019c). This value lies about CHF 1'000 below the level for the age group of 35 to 44 and 55 to 64 (Federal Statistical Office FSO, 2019c).

Empirical and theoretical evidence implies that household saving rates increase strongly with household income (Hugget and Ventura, 2000). In Switzerland, about 35 percent of the population is currently between 40 and 64 years old (Federal Statistical Office FSO, 2019d) and thus in the age range with the highest propensity to save. From an asset management perspective, these large savings of Swiss households indicate a large demand for asset management products and services since households seek to convert savings into managed investments. However, it is important to note that an ageing population will be an important factor in driving down the savings rate in the years to come since older households dissave to sustain their retirement years (Peters and Winkler, 2016). A second reason for the high savings rate can be found in the pension system and incentives in the tax code. The pension system in Switzerland consists of three pillars providing state, occupational, and private pensions. The state pension scheme together with occupational pension plans are grouped together in the first two pillars. The third pillar (pillar 3a) consists of a voluntary but tax-supported pension plan meaning that the legislator provides an incentive to save self-dependently.

A recent study by *Willis Towers Watson* (2019) reveals that Swiss pension schemes reached 126 percent of GDP in 2018 (excluding vested pensions assets and pillar 3a pension schemes), which corresponds to about CHF 893 billion in assets that need to be managed on behalf of these pension funds. This is among the highest percentages globally. Asset management firms provide products and services to manage these assets. A study by the *Swiss Bankers Association* shows that over the last decade and despite a severe financial crisis as well as a low yield environment, about 35 percent of the assets in Swiss pension funds have been generated by market returns (Swiss Bankers Association, 2017).

2.2.3. Business Cycle Perspectives

The global economy has been characterized by a large heterogeneity in terms of economic growth. While the USA continued to grow robustly, supported by a tax reform and strong domestic demand, the Eurozone lost momentum and grew at a moderate rate in the recent past. In China, the economic slowdown continued and the uncertainties around the trade dispute with the US had a negative impact on the Chinese economy and the overall sentiment. Moreover, for the USA and the Eurozone, some leading business cycle indicators imply a slowdown in economic growth. However, this development is related to a gradual return to the trend after several quarters of above-average growth. For Switzerland, the *KOF* Economic Barometer, a leading composite indicator for the Swiss business cycle predicting how the economy in Switzerland should perform in the near future, fell to the lowest level since the removal of the exchange rate floor in January 2015.

Figure 2.2 reveals that a decline in the *KOF* Economic Barometer signals rather weak growth perspectives for the Swiss economy.

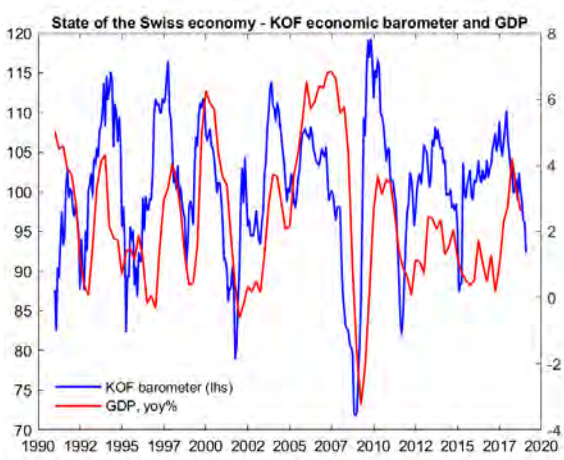

Figure 2.2: State of the Swiss economy.
(Source: KOF, FRED St. Louis FED)

According to the *International Monetary Fund* (IMF) the world economy is projected to grow at 3.5 percent in 2019 (IMF, 2019a). For Switzerland, GDP growth is set to slow. The *IMF* and the *State Secretariat for Economic Affairs* (SECO) project a real GDP growth of 1.1 percent (IMF, 2019b; SECO, 2019) for 2019, while the forecast of the *KOF Swiss Economic Institute* (KOF) is slightly more conservative with a projected real growth of 1.0 percent (SECO, 2019). The potential growth rate for the Swiss economy is estimated to be about 1.6 percent in 2018 (KOF, 2019). It follows that all forecasts expect the Swiss economy to grow below its potential. This slowdown in economic growth will have an impact on the labor market. However, projections by the *SECO* indicate that the average unemployment rate in 2019 will lie at 2.4 percent (SECO, 2019). Using the unemployment definition[21] from the *International Labour Organisation* (ILO) the unemployment rate is projected to be slightly below five percent (ILO, 2019). Overall, the favorable and robust labor market contributes to sustainable consumption spending and supports economic growth.

In the Eurozone and Switzerland monetary policy is still very accommodative. However, in case of a more accelerated economic slowdown or a macroeconomic

[21] According to the International Labour Organisation (ILO) unemployed people are defined as permanent residents who do not have a job, who are looking for work, and who can start work within a short period of time. Unlike the SECO definition, this definition also includes unemployed people who are not registered with regional employment offices and are not claiming unemployment benefits.

shock, many tools seeking to stimulate the economy, like large-scale asset purchase programs known as Quantitative Easing (QE) or negative interest rates have already been implemented. This means a large part of conventional and unconventional monetary policies have been used up. Under such a scenario stimulus in an economic downturn needs to come from the fiscal side, which requires a relaxation of the fiscal stance. However, in many countries the fiscal room for additional spending increases and tax cuts is limited. Switzerland has one of the lowest government-debt to GDP ratios among *OECD* countries (OECD, 2017). The introduction of debt-break rules on the federal, as well as cantonal level has reduced general government debt over the last 15 years from around 60 percent of GDP to 42 percent of GDP (IMF, 2018). Against this background, Switzerland has fiscal space. In particular, additional fiscal spending is effective in offsetting shortfalls in the domestic demand. However, to respond to an exchange rate shock a monetary policy response would be more appropriate. Nevertheless, in such a scenario, fiscal policy contributes to the overall stabilization of the macroeconomy (IMF, 2018).

2.2.4. Monetary Policy and Financial Markets

Economic uncertainty has a substantial impact on the decision making of households and firms. Uncertainty in this context refers to the inability to foresee the outcome of future events. Baker, Bloom, and Davis (2016) have developed an index to proxy economic uncertainty regarding fiscal, regulatory, and monetary policy. The measure is based on the frequency of major news discussing economic policy-related uncertainty. Baker, Bloom, and Davis (2016) showed that policy uncertainty innovations indicate declines in investment, output, and employment. Moreover, Pástor and Veronesi (2013) provide empirical evidence that stock returns are more volatile and more correlated when policy uncertainty is higher, especially in bad economic times. The global economic policy uncertainty (EPU) index has been on the rise in recent years, implying a significant rise in global economic policy uncertainty. Given the stable political and financial system in Switzerland accompanied by a low inflation rate, the Swiss franc turned into a safe haven currency.

Figure 2.3 shows the EPU index and the nominal Swiss franc exchange rate index consisting of the Swiss franc exchange rate against the currencies of Switzerland's most important trading partners. An increase in the value of the index implies an appreciation of the Swiss franc in nominal terms (expressed in foreign currency units). The correlation between EPU and the Swiss franc is 0.68, which means that the Swiss franc tends to appreciate during times when economic policy uncertainty is high.

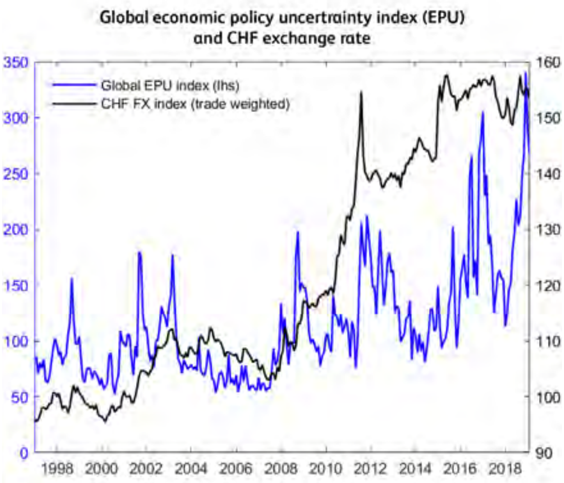

Figure 2.3: EPU index and trade weighted CHF exchange rate index (Source: PolicyUncertainty.com, SNB)

A strong currency coupled with low inflation and a weaker economic momentum (economic growth below potential) implies that it is very likely that the *Swiss National Bank* (SNB) will continue its accommodative monetary policy for a longer period of time. The conditional inflation forecast indicates that inflationary pressure is still very low and that the inflation rate will be way below the two percent upper bound until 2021. *SNB* expects the inflation rate to be 0.3 percent in 2019, 0.6 percent in 2020 and it anticipates an inflation rate of 1.2 percent in 2021 (SNB, 2019a). Moreover, the *European Central Bank* (ECB) postponed the timing of its first post-crisis policy rate hike to 2020 at the earliest, and launched a new series of quarterly targeted longer-term refinancing operations (TLTRO-III) starting in September 2019 with the aim of preserving favorable bank lending conditions. In this context, an interest rate normalization in Switzerland is rather unlikely to be observed. A premature interest rate rise would increase the interest rate differential between the Euro area and Switzerland and possibly put additional upward pressure on the EUR/CHF exchange rate, which counteracts *SNB*'s

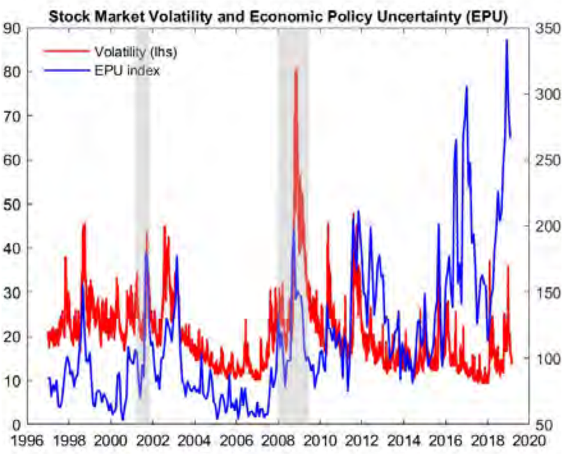

Figure 2.4: VIX S&P 500 and global EPU index.
The vertical grey shaded areas indicate US recessions.
(Source: St. Louis FED, PolicyUncertainty.com)

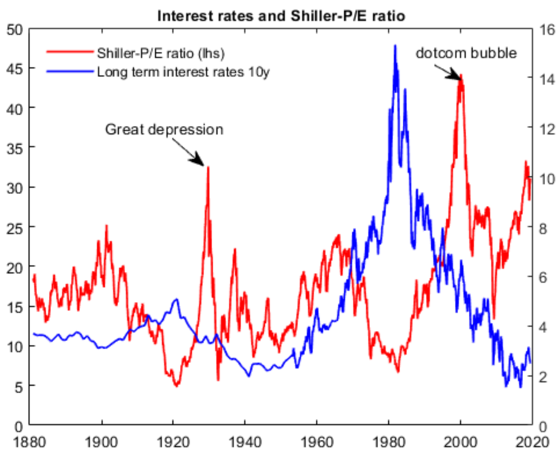

Figure 2.5: Interest rates and Shiller-P/E ratio.
(Source: Online data Robert Shiller, http://www.econ.yale.edu/~shiller/data.htm)

monetary policy aim of price stability. However, the low yield environment raises some challenges for asset managers and requires taking additional risks in traditional risk premia or to diversify into private and more illiquid assets.

A recent study by *BlackRock* among 230 institutional clients, representing over USD 7 trillion in AuM, found that a significant fraction of institutions intend to increase their exposure to private markets (real assets, private equity and real estate) in the search of uncorrelated sources of return. Moreover, 51 percent of those surveyed are concerned about the economic cycle and intend to decrease their allocation to equities. In term of macroeconomic risk that have an impact on asset allocation decisions, North American respondents are more concerned about rising US interest rates, while EMEA and Asia Pacific institutions consider geopolitical uncertainties and trade tensions as the main macro risks (BlackRock, 2019). Figure 2.4 shows the volatility index VIX[22] for the S&P 500 stock market index, as well as the global EPU index. While the implied volatility is low in the historical context, the EPU index reached an all-time high in December 2018. However, it seems that the high policy uncertainty does not increase stock market volatility yet.

Another effect that supports the stock market is the significantly more moderate policy stance of the *US Federal Reserve* and the associated projection of no further hikes in the policy rate in 2019. However, measured against Shiller's cyclically adjusted PE ratio (CAPE) of the S&P 500 index, the stock market valuation in the United States seems to be rather high.

Figure 2.5 shows that current valuations are comparable to those immediately prior to the stock market crash in October 1929 and the bursting of the dotcom bubble in March 2000.

In this context, a slowdown in economic momentum, geopolitical tensions, and unexpected shifts in monetary policy by major central banks pose the largest risks for financial markets.

[22] The volatility index VIX is a measure of the stock market's expectation of volatility over the following 30 days implied by S&P 500 index options.

2.3. Social Environment

By Jürg Fausch, Institute of Financial Services Zug IFZ

2.3.1. Sustainability

Sustainable investing is an investment approach that considers environmental, social, and governance (ESG) factors in asset allocation and portfolio management (GSIA, 2018). As an example, factors like climate change or the violation of minimum standards of international norms of business practices are increasingly seen as risk factors in portfolio management. Asset managers recognize that ESG issues are critical for the prospects of a company and that financial markets reward good ESG performance by companies (KPMG, 2018). A recent study by *Morgan Stanley* reveals that 82 percent of surveyed US asset managers agree that strong corporate ESG practices can potentially lead to higher company profitability and that companies with such practices may be better long-term investments (Morgan Stanley, 2018). In line with their fiduciary duty, asset managers thus consider ESG factors more comprehensively in their investment analyses and processes. In the five major markets (Europe, USA, Japan, Canada, Australia/New Zealand), sustainable investments grew by about 34 percent in two years from USD 22.9 trillion in 2016 to USD 30.7 trillion in 2018. This corresponds to a compound annual growth of approximately 16 percent. The largest growth has been observed in Japan, where the volume of sustainably invested assets more than tripled from 2016 to 2018. The *Global Sustainable Investment Alliance* (GSIA) defines the following activities and strategies as sustainable investment styles:

- **Negative/exclusionary screening:** The exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria.
- **Positive/best-in-class screening:** Investment in sectors, companies or projects selected for positive ESG performance relative to industry peers.
- **Norms-based screening:** Screening of investments against minimum standards of business practice based on international norms, such as those issued by the *OECD, ILO, UN,* and *UNICEF*.
- **ESG integration:** The systematic and explicit inclusion by investment managers of environmental, social, and governance factors into financial analysis.
- **Sustainability themed investing:** Investment in themes or assets specifically related to sustainability (for example clean energy, green technology or sustainable agriculture).
- **Impact/community investing:** Targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to business with a clear social or environmental purpose.
- **Corporate engagement and shareholder action:** The use of shareholder power to influence corporate behavior, including direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is guided by comprehensive ESG guidelines.

In terms of assets under management, the largest sustainable investment style globally is negative/exclusionary screening (USD 19.8 trillion), followed by ESG integration (USD 17.5 trillion) and corporate engagement/shareholder action (USD 9.8 trillion). While in Europe negative screening is still the dominant strategy, ESG integration is the largest strategy in the United States, Canada, Australia, and New Zealand (GSIA, 2018). From a relative perspective, in Canada and Australia/New Zealand responsible investing assets make up the majority of total assets in professional asset management. In Europe and the United States, about 49 and 26 percent of total assets, respectively, are invested under the consideration of ESG criteria. However, with respect to the global domicile of sustainably invested assets, Europe continues to manage the highest proportion, with almost half of the global volume. With respect to investor classification, 75 percent of sustainable investments are held by institutional investors and 25 percent by retail investors. In terms of asset allocation, sustainability extends to all major asset classes. However, public equity and fixed income investments contribute to about 87 percent of sustainable investing assets based on data for Europe, the USA, Japan and Canada (GSIA, 2018).

For Switzerland the IFZ Sustainable Investments Study 2018 shows that the number of sustainable investment funds has grown by 26 percent on an annual basis, while the assets managed in these funds grew by about 44 percent from CHF 109 billion in June 2017 to CHF 157 billion in June 2018 (Stüttgen and Mattmann, 2018). A recent study conducted by

Swiss Sustainable Finance reveals that in 2018 the total volume of sustainable investments consisting of funds, mandates, and asset owners reached about CHF 716 billion. Among all sustainable investment styles, the largest volumes are allocated to ESG integration, followed by exclusions, and norms-based screening. In terms of asset class distribution among asset owners and asset managers in Switzerland, real estate/property is the most popular category for sustainable investing, followed by equity investments (corporate and sovereign), and bonds (Swiss Sustainable Finance, 2019).

When analyzing the reasons to pursue sustainable investing strategies the three most common motivations according to a recent *McKinsey* study are enhancing returns, strengthening risk management, and aligning strategies with the priorities of beneficiaries and stakeholders (McKinsey, 2017). In terms of investment performance a meta-study of more than 2'000 papers by Friede et al. (2015) shows that about 90 percent of these studies find a non-negative relationship between ESG criteria and corporate financial performance. Moreover, the large majority of studies reports a positive impact of ESG factors on the financial performance of firms. In the context of risk management, institutional investors increasingly observe that risks related to ESG issues can have significant effects on a firm's market value and reputation. In particular, risks related to climate change are at the forefront of institutional investors' concerns (McKinsey, 2017).

Finally, investor demand is an important driver for institutional investors to develop sustainable investing strategies. Sustainable investing seems to be very appealing to younger investor generations. A survey by *Morgan Stanley* revealed that in particular the generation of millennials (Generation Y) shows a strong interest in sustainable investing themes (Morgan Stanley, 2017). Millennials are already the largest generation within the US labor force (Pew Research Center, 2018) and will make up over a third of the global workforce by 2020 (Manpower Group, 2016). Besides entering their prime earning years in the labor market, an extensive wealth transfer from the baby boomer generation to millennials is anticipated. Estimates for the USA expect that in the next three decades about USD 30 trillion to be passed on to these generations (Accenture, 2015). As millennials start accumulating wealth, the adoption of sustainable investment products is an imperative for asset management firms to accommodate the needs of this generation.

According to the *Swiss Sustainable Finance* study there is a widespread consensus among asset managers in Switzerland that the Swiss market for sustainable investments will continue to grow in the future. About 65 percent of the surveyed asset managers expect a future growth of up to 15 percent while the remaining study participants anticipate even higher growth rates. Among the key drivers for the growth in sustainable investments are an increased demand from institutional and private investors, as well as regulatory developments (Swiss Sustainable Finance, 2019).

A survey conducted by the *Asset Management Platform Switzerland* (AMP) in March 2019 among 40 Swiss-based asset management firms reveals that 60 percent of all surveyed asset managers recognize the most important reason for the future growth of sustainable investments in the customer demand for such investment products. In contrast, only around a quarter of the survey participants see regulatory or internal requirements as the most important reason for future sustainable investment growth (AMP, 2019). However, the *European Commission* plans to amend the current regulatory framework of MiFID II, UCITS, and AIFMD by integrating sustainability risks. For the asset management industry in the *European Union* this implies that asset managers are required to disclose how sustainability factors are integrated into the investment process and the impact of sustainability risks on financial products. It is important to note that these requirements will be applied for all asset managers independent of whether they purse sustainable investment strategies or not (PwC, 2019).

2.3.2. Talent & Skill

One of the key resources in asset management are skilled employees. In a survey conducted by *PwC*, 70 percent of financial services CEOs see the limited availability of skills as a threat to the growth of their business. The disruptive impact of new technologies, new regulation, and changing customer expectations requires employees with a very diverse skill set (PwC, 2016b).

Switzerland has a strong education system, which is characterized by a high degree of permeability and open access to various types of education, given that the required qualifications are fulfilled. On the upper secondary level, about one third of adolescents decide to attend a more general education school, which prepares them for tertiary education at a university or university of applied sciences. The other two thirds enroll in vocational education, which combines classroom instruction at a vocational school with an apprenticeship in a company (Swiss Conference of Cantonal Ministers of Education EDK, 2019). This tight combination of theoretical and practical knowledge provides them with a solid foundation in a given occupation and is one of the main reasons why the Swiss education system is highly competitive. In its latest Human Capital Report, the *World Economic Forum* (WEF) ranks the quality of the Swiss education system highest in the world. Moreover, Switzerland also leads in the know-how subindex, which captures the breadth and depth of specialized skills use at work. According to the *WEF* the Swiss economy consists of a very high share of skill-intensive employment and economic complexity (WEF, 2017).

The IMD World Talent Ranking 2018 confirms these findings of Switzerland being a major global talent hub, where the country leads the overall ranking for the fifth consecutive year. In particular, Switzerland is ranked first in the appeal factor, which evaluates the extent to which a country attracts local and foreign talent, as well as in the readiness factor that quantifies the quality of the skills and competencies that are available in a country. In the investment and development factor, which measures the resources committed to cultivating homegrown human capital only Denmark, Austria, and Norway reached a higher score (IMD, 2018). These countries obtained a higher score in that particular factor due to higher total public expenditures on education (as a percentage of GDP), a lower pupil-teacher ratio (as a ratio of students to teaching staff) and a larger female labor force (as a percentage of total labor force).

Switzerland also assumes a leading role in higher education at the tertiary level, which is of particular importance for asset management. Various cantonal universities and the two *Swiss Federal Institutes of Technology in Zurich and Lausanne* (ETH Zurich and EPF Lausanne) hold strong positions in international university rankings. In the 2019 QS World University Ranking, seven Swiss universities are among the top 200 universities in the world. Among these universities, the *ETHZ* is the only top 10 institution (ranked 7th) and belongs to the world's best higher education institutions (QS Top Universties, 2019). The asset management industry has a substantial demand for a broad variety of well-educated specialists. However, not only knowledge in business and economics is required in the industry. Graduates with degrees in mathematics, computer science, natural sciences, and technology are of particular interest for asset management companies. Very often positions with a strong quantitative background such as risk or portfolio management are increasingly filled with people coming from such a background. The availability of labor with these qualifications is also a major driver of innovation in asset management. Moreover, according to the WEF Global Competitiveness Index 4.0 the research collaboration between universities and the industry in Switzerland is very close. One example of a collaboration between the financial industry and six Swiss universities (EPFL, ETHZ, University of Geneva, University of Lausanne, Università della Svizzera italiana, University of Zurich) is the *Swiss Finance Institute*, which has a strong focus on fundamental research, training of doctoral students in finance, and continuing education in the fields of banking and finance. Moreover, many universities or universities of applied sciences in Switzerland offer specialized tracks related to financial markets, portfolio and risk management or investments in their bachelor's and master's programs in economics or finance. In order to boost the scientific knowledge about asset management and to develop a strong domestic skill pipeline, a more intense collaboration between universities and the asset management industry would be highly beneficial. In particular joint projects between asset managers and the academia, with a clear focus on the needs of the asset management industry, seem to be very beneficial. In this context, the Swiss innovation promotion agency, *Innosuisse*, promotes science-based innovation with the aim to facilitate the partnership between the academia and the market with innovation projects (Innosuisse, 2019).

In terms of specific asset management qualifications, Switzerland has the ninth largest Chartered Financial Analyst (CFA) penetration globally. Currently the *CFA Society Switzerland* counts about 3'500 members whereof about 2'100 work in core functions of investment management, which includes asset and wealth management as well as asset owners. (CFA Institute, 2019a; 2019b). Focusing on CFA char-

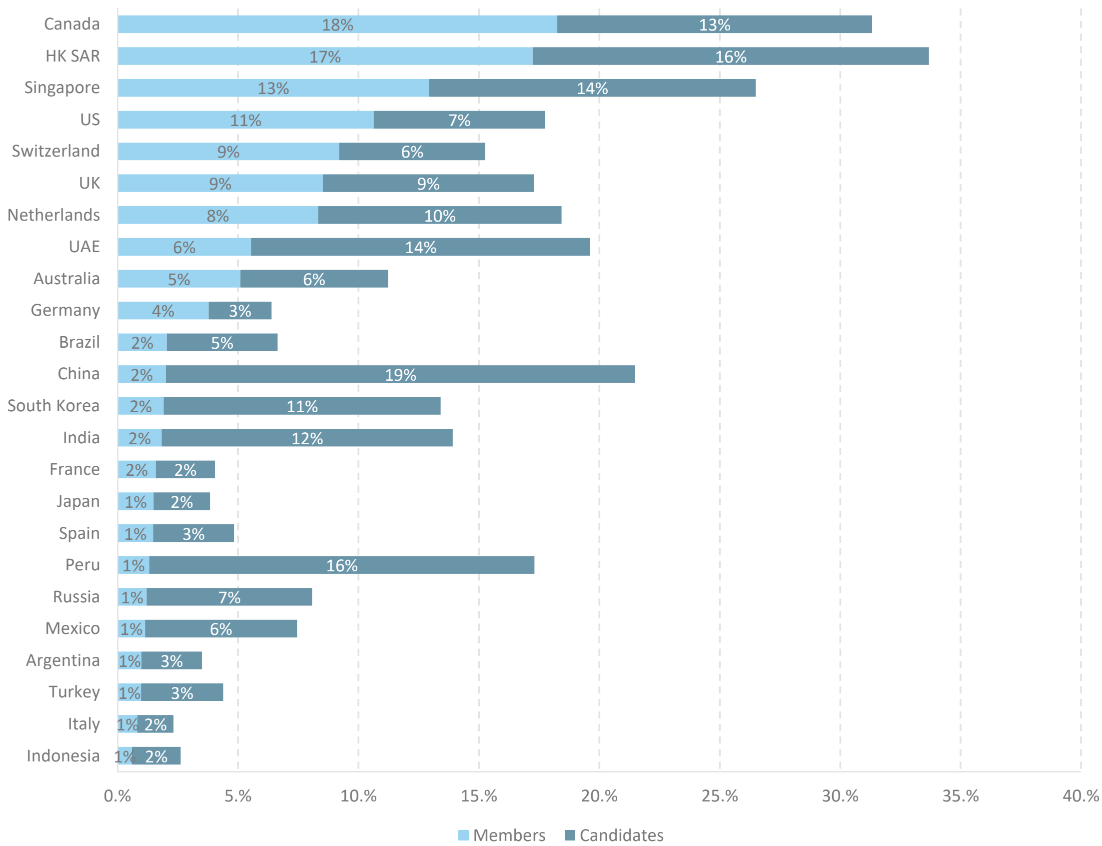

Figure 2.6: CFA charter holder market penetration in core functions of investment management. (Source: CFA Institute, 2019b)

ter holder market penetration (members) in core functions of investment management illustrated in figure 2.6, Switzerland is the fifth largest market globally and the leader in Europe. Nine percent of investment professionals working in a core function of investment management in Switzerland are estimated to be CFA members. This illustrates that the asset management industry can rely on a significant talent pool with asset management specific knowledge. However, in terms of CFA candidates, Switzerland is only ranked 15th globally and fourth in Europe, which shows that further efforts need to be made to further qualify people with asset management specific knowledge in Switzerland.

The previous analysis showed that Switzerland has the prerequisites to drive innovation in asset management on a global scale. The country's strong higher education system offers a large pool of highly educated people with deep expertise in finance and technology. Moreover, the country has been ranked first in the latest Global Innovation Index and is to be considered the most innovative economy in the world since 2011 (World Intellectual Property Organization, 2018). However, it is important to make further efforts to maintain or even expand this leading position, so that this stimulating environment for innovation can be preserved. According to the Global Innovation Index report Switzerland has room for improvement in terms of the ease of starting a business, expenditure on education, productivity growth, and ease of getting credit (World Intellectual Property Organization, 2018). Another important factor, not just for Swiss asset management, is the global access to skilled labor, since in many industries the demand for talent exceeds the supply, such that workers need to be recruited from abroad. The appeal of cities as a high quality place to live and work plays a key role in attracting global talent as well as national and international businesses. According to Mercer's Quality of Living Survey 2019 the cities of Zurich (2nd), Geneva (9th), and Basel (10th) are ranked in the top 10 among

231 cities worldwide. The ranking is based on different factors that determine the quality of living like the economic, political and social environment, schools and education, public services and transport, housing, health, and safety (Mercer, 2019). However, in order to have access to a global talent pool it is important for the asset management industry that liberal immigration laws are maintained in Switzerland.

2.4. Technological Environment

By Thomas Ankenbrand & Jürg Fausch, Institute of Financial Services Zug IFZ

2.4.1. The Role of Technology in Asset Management

The technological environment constitutes the final dimension of the PEST analysis. This subchapter provides an overview of the relevant financial market infrastructure and major technological developments, as well as their impact in the field of asset management. For the asset management industry technology matters at least along two dimensions. The first dimension concerns the financial market infrastructure, while the second dimension refers to the use of novel IT technologies along the asset management value chain.

The financial market infrastructure in Switzerland includes securities exchanges and other trading venues, central counterparties, central securities depositories, payment systems, and trade repositories. The legal basis for the authorization of financial market infrastructures is primarily set out in the Financial Markets Infrastructure Act (FMIA) and the corresponding ordinances (FINMA, 2019). According to an evaluation of the *International Monetary Fund,* Switzerland has a well-developed and stable financial market infrastructure, which is essential for the asset management industry to be able to provide their services efficiently (IMF, 2014). The main securities trading platform in Switzerland is the *SIX Swiss Exchange,* which offers a fully integrated value chain including automatic trading, settlement, and clearing combined with an efficient and fast listing process. In particular, the systemically important financial market infrastructure in Switzerland consists of the *Swiss Interbank Clearing System* (SIC), the *SIX SIS* central securities depository and the SECOM securities settlement system, as well as *SIX x-clear. SIC* is the central electronic Swiss payment system in which the participating financial institutions process their large-value payments, as well as a part of their retail payments in Swiss francs. *SIX SIS* and SECOM provide custody and settlement services for tradable financial instruments in Switzerland, while *SIX x-clear* assumes the role of a central counterparty, which acts as an intermediary between the trading partners (SNB, 2019b). The entire financial market infrastructure is of central importance for all market participants in the asset management ecosystem. A breakdown in a major part of this infrastructure would pose a substantial operational risk to all market participants. In order to reduce systemic risks, the *SNB* has the mandate to oversee the financial markets infrastructure operated by the private sector and to promote its security and efficiency with the aim to ensure financial stability (SNB, 2019b).

In addition to the financial markets infrastructure, technology plays an important role in almost every part of the asset management value chain. In particular, the key asset management functions comprising portfolio management, risk management, and research rely heavily on data provided by third party vendors in their analyses. This data includes security and pricing data as well as market indices. Moreover, a lot of data is processed with respect to administrative and operational functions like accounting, securities pricing, net asset value computations or compliance related tasks. Very often, this data is gathered from multiple sources, which requires that asset managers need systems to manage all the relevant information in an efficient way. These systems can be developed internally, which requires a strong commitment to building and maintaining technology resources, or purchased from specialized vendors (BlackRock, 2014, 2016).

However, in practice, many asset managers use a combination of third party and internally built systems to perform the various tasks related to investment decision making. The increasing availability of various kinds of data and increasing analytics capabilities require substantial investments in core-platform technology like new front-office backbones, for example portfolio or order management systems, and new data infrastructure (BCG, 2016). Moreover, advances in artificial intelligence such as various machine learning algorithms and the use of big data offer new opportunities to receive a better understanding of customer needs, as well as to improve investment performance. Finally, these technologies will be an important driver of achieving long-term cost efficiency in the asset management industry. The potential for these technologies to cut costs and create efficiencies is particularly large in the front office and in sales and service (PwC, 2018). In a market with increasing margin pressure, technology might be one solution to lower costs by automating processes and maintain profitability in the future.

2.4.2. Technological Innovation in Asset Management

The previous section illustrated that novel technological innovation impact the asset management industry. An analysis by the information technology firm *Atos* reveals ten key technologies set to impact financial institutions over the next five years and build the foundation of a next-generation financial services ecosystem (Atos, 2018):

- **Hybrid cloud:** Enables the secure and seamless integration of private and public cloud platforms, thus exploiting the benefits of private and public clouds as well as taking advantage of the flexibility and power of cloud-native applications.
- **API platforms:** Allows financial services and products to be distributed across third parties.
- **Robotic process automation:** Will manage repetitive tasks and thereby reduce the cost of administrative and regulatory processes while improving quality and speed.
- **Instant payments:** The move towards a cashless society and more connected devices is making the payments sector evolve rapidly, driven by data and better customer experiences.
- **Artificial intelligence (AI):** Supports human cognitive capabilities and knowledge engineering and will impact customer service, trading and compliance.
- **Blockchain:** Enables data storage and processing without establishing prior trust relationships and could revolutionize audit trails, automated contracting and the microservice economy.
- **Prescriptive security:** Uses AI, real time monitoring, and automation to detect potential threats before they strike. Applications range from cyber protection to fraud management and compliance.
- **Augmented and virtual reality:** Allows customers and employees to engage with financial services within the context of the current environment.
- **Quantum Computing:** Brings advances in risk analysis and high-frequency trading as well as curbing cyber security by breaking traditional cryptographic standards.
- **Smart machines:** Will potentially change the nature of customers, with smart things working on behalf of their owners and transform go-to-market strategies.

Figure 2.7 provides an overview of these technologies on a two dimensional radar diagram.

Each position in the respective quadrant illustrates the level of adoption (adopt, trial, assess, explore) of a technology along with the potential size of the business impact (low, medium, high, transformational), while each color represents the current maturity (mainstream, early adoption, adolescent, emerging) of each topic. For example, financial services firms assess artificial intelligence and its business impact as transformational, while the technology per se is in its adolescent phase. In the next four subchapters, we provide a more thorough overview of some of the above technologies, while discussing their potential impact on the asset management industry in the near future.

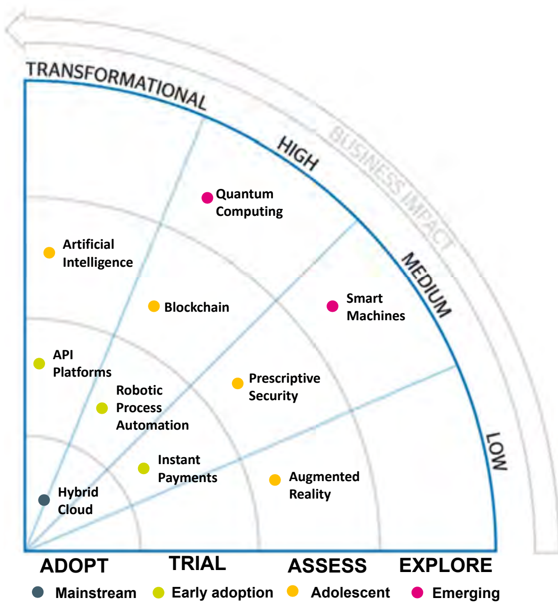

Figure 2.7: Disruptive technologies (Source: Atos, 2018)

2.4.3. Artificial Intelligence

A powerful application of artificial intelligence is analytics. Like every other industry, asset management is impacted by rapidly evolving digital and analytics technologies. One of the key reasons why analytics has received a lot of attention in the recent past is the combination of the availability of large data sets (big data) and an increasing amount of inexpensive computational power. Davenport and Harris (2007) provide a frequently used definition of analytics: "Analytics is the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact based management to drive decisions and add value." The benefits for firms relying on analytics are well documented. Research indicates that companies in the top third of their industry in the use of data-driven decision making were, on average, five percent more productive and six percent more profitable than their competitors (McAfee and Brynjolfsson, 2012).

Figure 2.8 shows that analytics can be categorized into descriptive, diagnostic, predictive as well as prescriptive analytics (IBM, 2015):

- **Descriptive analytics:** The main task of descriptive analytics is data gathering, data visualization, and descriptive statistical analysis. Very often this type of analytics is referred to as business intelligence.
- **Diagnostic analytics:** The focus of diagnostic analytics is to analyze data and find patterns or to predict certain events. It deals with the question as to what the trends are, why something is happening or why it happened. An example for diagnostic analytics might be to understand the reasons why a customer left a company.
- **Predictive analytics:** Statistical models are used to forecast or predict behavior or outcomes in the future. A typical application is the prediction of default risk.
- **Prescriptive analytics:** The main goal of prescriptive analytics is to figure out what needs to be done to achieve a certain result. In this context optimization and simulation techniques are used. At this stage, there is a strong interaction between algorithms and human expertise. Patterns recognized by algorithms need to be interpreted by human experts. A use case for prescriptive analytics in asset management is to enhance customer care and optimize sales by choosing those sales opportunities that likely result in new sales.

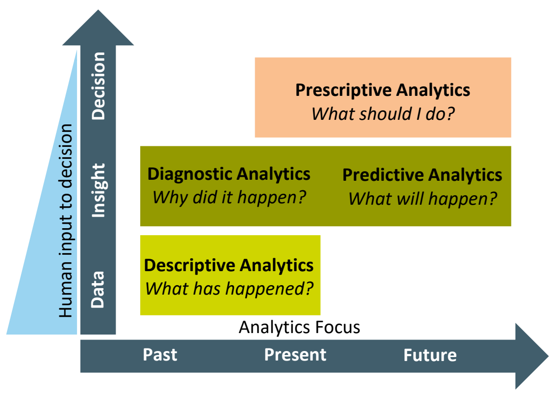

Figure 2.8: Four types of data analytics (Source: IBM, 2015)

Data science techniques like machine learning, text mining, and natural language processing are increasingly used in a data-rich investment environment (BCG, 2016). As an example, at the asset management division of *UBS* machine learning algorithms are applied to fund flows, product innovation, alpha generation as well as risk and middle/back office operations. In particular, alternative data sources that can be fed into analytics models are of major interest. Alternative data can be understood as data that can be found outside traditional data sources such as market data, economic statistics, regulatory filings, company fundamentals, etc. Sources of alternative data are, among others, satellite images, geospatial data or social media feeds. In this context, satellite images are used by some asset managers to identify the number of cars in store parking lots in order to proxy retail sales activity and gain important insights before the corresponding data is publicly disclosed (Element22, 2018). Moreover, *UBS Asset Management* uses card payment information to monitor sales data against earnings estimates and potential share price impacts (Forbes, 2018).

A recent study by the analytics consultancy firm *Element22* among 20 asset management firms in North America and Europe with more than USD 14 trillion of assets under management, reveals that 85 percent use analytics and 55 percent use alternative data to gain an investment advantage. To help generate alpha, analytics capabilities are deployed in research, trading, portfolio construction, and the development of investment strategies. Moreover, technologies like machine learning and natural language processing are also heavily used in the acquisition and retention of clients. In order to take advantage of analytics technologies asset managers need to create a technology infrastructure. In this context, a cloud environment provides the necessary scalability and elasticity for any analytics programs. Moreover, storage and computing capacities are of major importance since the data stores in asset management firms range from 10 terabytes to 1.5 petabyte.[23]

Finally, cloud-computing providers are expanding their offerings from providing the infrastructure to software as a service including comprehensive analytics resources. However, in order to build up a successful analytics and alternative data program not only the investment in technology and data are important, but also talent. The *Element 22* survey indicates that the median analytics teams in the surveyed asset management firms consist of 25 people and more than 7 data scientists. However, some firms employ more than 500 people in data and analytics whereof 200 are data scientists (Element22, 2018). According to *IBM* the demand for data scientists and data engineers in the United States is projected to grow by about 30 percent by the year 2020. Moreover, the finance and insurance industry has the largest percentage of job openings that fall within the data science and analytics jobs (IBM, 2017). These numbers imply that companies in this sector, including asset management firms, have a large demand for data science skills in order to build up and grow analytics programs.

2.4.4. Blockchain

The distributed ledger technology (DLT), also known as the blockchain technology, has gained a lot of mainstream attention recently in connection with cryptocurrencies. The most prominent example in this context was the emergence of Bitcoin. However, cryptocurrencies are only one specific application or use case of DLT. Fundamentally, DLT is a decentralized database that keeps a record of all transactions in a chronological order that take place across a peer-to-peer network, not controlled by a single central authority. All the transactions made in the network are cryptographically secured (hashing) and an identical copy of the ledger is held (distributed) and validated through a consensus mechanism by all nodes on the network. After validation, all transactions are immutably stored due to cryptographic security measures. Moreover, it is important to note that various types of blockchains exist (OECD, 2019). In terms of potential applications in asset management, DLT is useful when it comes to the disintermediation and automatisation of processes. In this context, smart contracts play a key role. Smart contracts are programmable contracts (software algorithms) that are capable of automatically enforcing themselves when pre-defined conditions are met. In the asset management ecosystem, various tasks related to clearing and settlement activities could be fulfilled by smart contracts, thereby increasing the efficiency and lowering costs. In particular, a DLT infrastructure might be well suited to build a stock exchange market infrastructure as well as for regulatory reporting and compliance purposes (Capgemini, 2016). More recently, a very promising use case of DLT in asset management has emerged with the tokenization of assets, which refers to the process of issuing a blockchain token that digitally represents any kind of asset. These asset tokens for example represent a share in a company, ownership of real estate or participation in an investment fund (Deloitte, 2019). The tokenization of assets makes it possible to increase market efficiency by reducing frictions related to buying and selling assets.

According to a recent report by *Deloitte* key advantages of tokenization are the following (Deloitte, 2019):

- **Greater liquidity:** By tokenizing assets, more illiquid assets like private market investments or art can be traded on secondary markets. The access to a broader set of investors increases the liquidity.
- **More transparency:** The token holder's rights and legal responsibilities are embedded directly into the token along with an immutable record of ownership. This enables investors to identify exactly who they are dealing with and who previously owned a particular token.
- **More accessible:** Since asset tokens are highly divisible, meaning tokens can be purchased at a very

[23] A petabyte is equivalent to 1'000 terabyte or 1'000'000 gigabyte. This is comparable to 20 million filing cabinets' worth of text (McAfee and Brynjolfsson, 2012).

small percentage of the underlying asset, they are accessible to a wider group. Another direct implication is that the level of minimum investment amounts for investors will be lowered. Moreover, the higher liquidity of security tokens could further reduce minimum investment periods since securities can be traded on the digital secondary market on a daily basis, which offers opportunities for creating new products.

However, it is important to note that these advantages need to be supported by adequate regulation in order to unfold their full potential. Since DLT-based platforms are decentralized, the corresponding security regulation may vary among different jurisdictions. Regulation not only involves the tokenization itself but also the trading of tokens on secondary markets. If regulation should prevent the free and international exchange of security tokens, many advantages of tokenization are undermined (Deloitte, 2019).

In Switzerland, the *Swiss stock exchange SIX* recently announced its intention to build a fully integrated settlement and custody infrastructure for digital assets called SIX Digital Exchange (SDX). The service is mainly based on DLT and will provide a safe environment for issuing and trading digital assets and enable the tokenization of existing securities and non-bankable assets (SIX, 2018).

Another initiative to build and grow a regulatory compliant financial market infrastructure for digital assets was announced in March 2019 by *Deutsche Börse, Swisscom,* and *Sygnum.* These companies entered into a strategic partnership to build a trusted digital asset ecosystem, which includes issuance, custody, access to liquidity and banking services using DLT. Moreover, *Deutsche Börse* and *Sygnum* will become shareholders of *daura AG* which has developed a platform that uses DLT to issue, securely transfer, and register Swiss SME-shares, enabling non-listed companies to access capital markets (Swisscom, 2019).

The above efforts show that the tokenization of assets has entered the next level and will continue to play a larger role in the near future thereby increasing the accessibility of the financial industry in general. Moreover, it offers access to illiquid and new asset classes with new investment opportunities.

2.4.5. Robotic process automation

The general trend towards digitization and automatization requires financial services providers to invest in new technologies and to adapt their business and operating model to improve their operational excellence or to meet changing customer needs in an increasingly technological world. FinTech start-ups, operating under low-cost, technology driven business models pose a significant challenge to incumbent financial advisory and asset management firms. These digital investment management services are broadly referred to as robo-advisors. The overreaching principle of robo-advisors is to reduce human intervention and to utilize mathematical algorithms and quantitative models to find optimal investment strategies for clients and to support investment decisions (Kaya, 2017). Digital investment management solutions are very often perceived as a low-cost alternative to traditional asset management firms who follow a more active portfolio management approach. However, as outlined in greater detail in chapter 4, robo-advisors should rather be seen as an additional distribution channel for asset management firms. Moreover, robo-advisor algorithms are free of human emotions and avoid investment mistakes that are driven by behavioral biases. A compelling body of research in behavioral finance discovered that these biases have an adverse impact on investment decisions. Among others, these findings reveal that due to loss aversion and mental accounting, investors sell winners too early and hold losers too long (disposition effect, Shefrin and Statman, 1985), experience overconfidence, which results in over-trading (Barber and Odean, 2000) or hold under-diversified portfolios (Kelly, 1995; Goetzman and Kumar, 2008) with a strong preference for local and home country stocks (Huberman, 2001). Robo-advice could have a positive impact in order to mitigate or even avoid these biases and enhance the quality of financial decision making. A more in-depth analysis of the robo-advisory landscape in Switzerland and abroad is provided in chapter 4 of this study.

2.4.6. Cyber Risk

Cybersecurity is critically linked to the stability of the financial markets infrastructure in particular and financial stability in general. According to the *Accenture* High Performance Security Report 2016, the average number of targeted security breaches a typical financial services firm faces is 85 per year. Of all these attacks 33 percent succeed, which corresponds to about two to three per month (Accenture, 2016). Among all the attacks are data breaches, ransomware or spoofing[24]. With respect to the asset management industry cyber risks can materialize along the entire value chain with particular risks around the theft of client data as well as payment fraud (The Investment Association and KPMG, 2018). In order to stay ahead of potential cyber attacks, it is important to build up cyber resilience, which is the ability to operate business processes under normal and difficult scenarios without adverse outcomes. Cybersecurity requires a holistic approach that requests the involvement from across the organization and needs to be a strategic imperative supported by the top management. A continuous cybersecurity assessment, including the simulation of attacks, to better understand the impact of an incident on the firm is of central importance (Accenture, 2017). On average, financial services institutions spend 8.2 percent of the their IT budget on cybersecurity. However, 40 percent of the firms are in the four percent to six percent range, which is considered underspending, while 20 percent of the firms in the financial sector overspend by allocating more than eleven percent of their IT budget to cybersecurity. Both underspending and overspending imply an unbalanced cybersecurity risk management strategy (Accenture, 2017).

2.5. Comparison of Asset Management Hubs

By Thomas Ankenbrand & Jürg Fausch,
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In this section, we provide an update of the asset management hub ranking introduced in the first edition of the IFZ/AMP Asset Management Study published in June 2018. The aim of this chapter is to evaluate the competitiveness of Switzerland as a center for asset management on a global scale by deriving a ranking of multiple asset management hubs. The ranking evaluates the conditions for asset management in a country based on the PEST-analysis described in section 1.2. The ranking framework and applied methodology is outlined in greater detail in section 2.5.2.

2.5.1. Introduction

Switzerland is a well-known and leading financial center and the financial sector is an important pillar for the Swiss economy. In 2018, the financial sector contributed to 9.1 percent of GDP, which corresponds to an added value of CHF 62.78 billion. On a global scale, only Luxembourg (28.1%) and Singapore (12.2%) generate a higher proportion of GDP from the financial sector (SIF, 2019). Measured in full-time equivalents, the Swiss financial center employs 5.5 percent of the overall labor force in Switzerland, which corresponds to about 204'300 people (Federal Statistical Office FSO, 2019a). Based on its size, the financial industry is an important tax payer and makes contributions based on taxes on workers' income as well as taxes on revenues of financial services providers. The latest numbers reveal that in 2016, 7.5 percent of direct overall tax revenues are related to the financial industry (SIF, 2019). Due to its long tradition, Switzerland's financial center is very often perceived as a hub for private banking and wealth management services. However, an important sub-sector is the asset management industry. Our estimates indicate that asset managers based in Switzerland manage more than CHF 2 trillion on behalf of domestic and foreign institutional clients. This is approximately three times the size of Swiss GDP[25] and about twice the amount of assets held in Swiss pension schemes.[26]

2.5.2. Ranking Methodology

In order to compare the general conditions surrounding the Swiss asset management industry to other asset management hubs we conduct a hub ranking based on quantitative factors. Due to consistency reasons and comparability with the results of the 2018 asset management hub ranking we rely on the same ranking methodology.[27] The ranking methodology is again based on the PEST-approach described in

[24] Spoofing is a broad term for a situation where cyber criminals or programs pretend to be a trusted party in order to obtain sensitive personal information. The most frequent spoofing attacks are related to email spoofing or IP spoofing. While email spoofing focuses on the user, IP spoofing is primarily aimed to gain access to an unauthorized network. A spoofer who hijacks a browser can divert visitors from a legitimate website to a similar-looking fraudulent website (Kaspersky LAB, 2019).

[25] According to SECO data GDP in Switzerland was CHF 689'898 million at the end of 2018.

[26] According to a recent study by Willis Towers Watson (2019) autonomous Swiss pension funds managed approximately CHF 893 billion in assets at the end of 2018 which corresponds to 126 percent of Swiss GDP.

[27] A detailed discussion of the ranking methodology is discussed in section 6.2 of the IFZ/AMP Asset Management Study 2018.

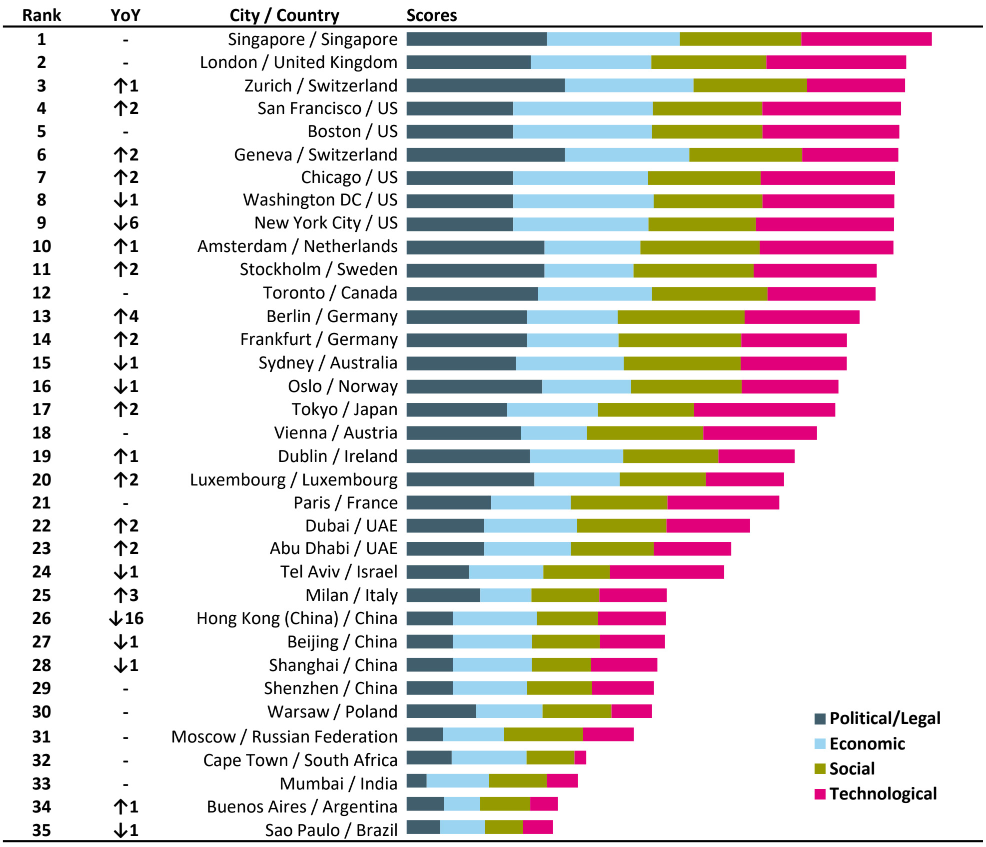

Figure 2.9: Asset management hub ranking

section 1.2 and includes a total of 60 (updated) indicators, either on city- or country level, from publicly available sources[28]. Compared to the 2018 ranking due to the lack of data availability five factors (demographics, openness, proclivity to attracting talent, quality of labor force, talent environment, university education) had to be excluded while six new, more asset management relevant indicators have been added. The new indicators include *RobeccoSAM's* country sustainability ranking (environmental, governance, and social), financial market sophistication, CFA members, and the unemployment rate. The hub ranking is generated in four steps. The first step consists of categorizing each indicator into one of the four PEST-dimensions. In a second step for each indicator, an individual ranking of all 35 in-scope asset management hubs is derived, resulting in 60 individual scores ranging from 1 (worst performance) to 35 (best performance). Third, for each city the four PEST dimension scores are derived by averaging the underlying indicator rankings of each PEST dimension. This procedure implies that the PEST dimension scores are again bound between 1 and 35 with the interpretation that a higher score is associated with a better performance in the corresponding dimension. In a fourth step, the PEST-dimension scores are aggregated for every asset management hub, which means each of the four dimensions are equally weighted. The final asset management hub ranking is finally derived by sorting the hubs in descending order.

2.5.3. Asset Management Hub Ranking

The ranking methodology outlined in section 2.5.2 results in the hub ranking depicted in figure 2.9. A

[28] The list of all indicators and the corresponding sources are listed in the Appendix.

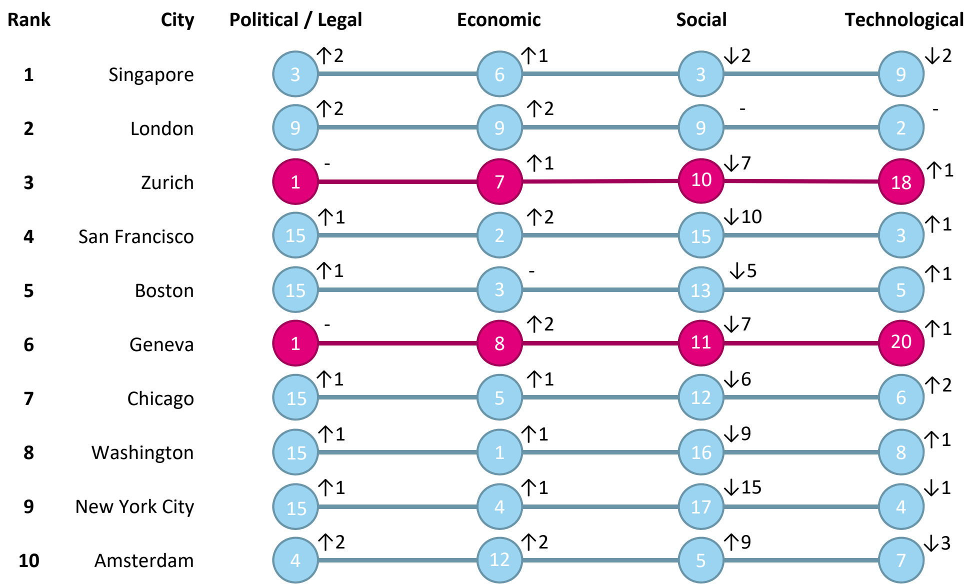

Figure 2.10: Ranking in each PEST-dimension and year-on-year changes

year-to-year comparison reveals that the ranking is again led by Singapore and London. Being ranked on positions three and six respectively, the Swiss asset management hubs Zurich and Geneva did gain one, respectively two positions, which shows that Switzerland offers very favorable conditions for asset management companies to thrive. The top ten are completed with asset management hubs in the United States (San Francisco (4), Boston (5), Chicago (7), Washington (8), New York City (9)) as well as Amsterdam (10) which newly entered the top ten in this year's ranking. Overall, it is important to note that the asset management hubs ranked on positions two to ten perform very similarly and differ only marginally in their competitiveness. Changes in ranking positions are thus not necessarily expressive and need to be interpreted with caution. The largest position change compared to the 2018 ranking is observed for Hong Kong, which lost 16 positions and is now ranked 26. Hong Kong lost ground in every PEST dimension and is ranked in the lowest quartile in the political/legal, economic, social, and technological dimension. However, the largest drop in this context occurred with respect to the political and legal environment.

Figure 2.10 illustrates the ranks of the top ten asset management hubs in each PEST dimension together with the corresponding year-to-year change in order to illustrate the strengths and weaknesses of the hubs in greater detail. A striking feature in comparison to last year's ranking is that New York City lost six positions on a year-to-year basis. Since for most of the indicators the data is only available on a country level, the deterioration of New York City compared to other US asset management hubs can be explained by city specific indicators like higher wage levels, higher cost of living or a relative lower quality of living. Moreover, due to the exclusion of five indicators from the social dimension based on lack of data availability, and the addition of two new factors (RobeccoSAM social sustainability, unemployment), New York City lost 15 positions in that particular dimension, which also contributes to the explanation as to why New York City assumes an inferior position in this year's ranking.

However, among the top ten asset management hubs in this ranking all except London and Amsterdam faced a deterioration in the social dimension due to the exclusion and inclusion of indicators. As in the previous year, the political and legal environment is Switzerland's key strength. Zurich and Geneva jointly lead this dimensional ranking. A high level of political stability, a progressive legal regulatory environment, and moderate corporate tax rates are factors that support the leading positions of Zurich and Geneva in the political/legal dimension of the ranking. In the economic dimension, both Swiss asset management hubs improved their positions by one (Zurich) respectively two (Geneva) ranks. In this context, it is important to note that the economic environment is very similar for all the asset management hubs situated in the top ten of the ranking.

However, as all US cities are ranked in the top five of the economic dimension it appears that US asset management hubs are embedded in a slightly stronger economic environment, which can be explained by the size and importance of US financial markets, the size of the domestic market and the higher number of high net worth individuals. Switzerland improved by one position in the technological dimension of the ranking, where the country is leading in the university-industry research collaboration. However, in terms of research talent in businesses Switzerland takes only a mediocre position and is ranked 14th. As mentioned above, the social dimension is not directly comparable to the 2018 ranking due to the exclusion and inclusion of certain indicators. However, the data indicates that Switzerland has a strong talent environment with internationally leading universities, a highly skilled labor force as well as a high quality of life. High costs of living, the relatively low level of enrolment in tertiary education, a talent mismatch[29] and wage pressure in high-skill industries prevent a better position of Switzerland in the social dimension of the ranking.

The results of the hub ranking reveal that Switzerland offers good conditions for the asset management industry and has a strong position as an asset management hub. However, due to lack of scale in the domestic market it is of strategic importance for Swiss-based asset managers to have unrestricted access to international markets in order to stimulate further growth of the industry. In particular, the unrestricted access to European institutional clients based on equivalence would increase the competitiveness of asset management firms in Switzerland. A key requirement for equivalence is that the regulatory and supervisory framework of non-member states like Switzerland is recognized by the *European Union* (EU). In this context, the adoption of the Financial Services Act (FinSA) and the Financial Institutions Act (FinIA) by the Swiss Federal Parliament in 2018 are key steps to reach this goal. The laws will likely come into force on January 1, 2020 and offer improved client protection, as well as Swiss equivalence with EU regulation in areas that are relevant for EU market access. However, even if the conditions for regulatory equivalence are technically fulfilled, without the recognition of the EU, non-discriminating access to the European single market will not be possible. However, not only the European market is of importance for exporting Swiss asset management. North America, with an estimated size of USD 37.4 trillion, is the largest asset management market in the world, while the growth in AuM in emerging asset management markets like China is very strong (22% annual growth, 2016–2017). A persistence of these growth rates implies that China will become the second-largest market following the US by 2025 (BCG, 2018).

[29] A rise in the rate of unfilled job vacancies implies that it becomes harder for employers to find and retain the right talent, which indicates a talent mismatch (Hayes, 2018).

3. Asset Management Companies in Switzerland

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In chapter 2 we analyzed the Swiss asset management environment based on a PEST analysis. In this chapter, we aim to give a deeper insight into Swiss asset management by presenting a descriptive analysis of the asset management market. Among other things, this includes a market sizing and an analysis of the most pressing challenges and opportunities faced by the industry based on a sentiment analysis. The data gathering for this primary research is based on a quantitative and qualitative survey among asset management firms in Switzerland based on the methodology and structure described in subchapter 1.3.

3.1. Scope and Methodology

As in last year's data request the institutes within the scope of this year's study consist of *FINMA* authorized banks and securities dealers, fund management companies, as well as asset managers of collective investment schemes licensed under the Collective Investment Schemes Act (CISA). Among these institutions, we identified 191 firms, which consider asset management as their main value proposition and are in line with our definition of asset management outlined in subsection 1.1. Among these companies, we removed five firms which have more than one *FINMA* license in order to avoid double counts, which leaves us with 186 asset managers to be surveyed. The data gathering is based on a quantitative and qualitative questionnaire. The quantitative questionnaire builds the baseline for the market sizing while the qualitative questionnaire consists of sentiment questionnaires and provides information about operational data, customer segments, offered asset management services, revenue model, and management style in the form of a company factsheet. The corresponding factsheets of all the asset management companies that participated in this study are presented in chapter 6.

Figure 3.1 illustrates that out of the 186 surveyed asset managers, 67 participated in the study and returned at least one questionnaire (market sizing survey or sentiment questionnaire), as well as the company factsheet. This is equivalent to an overall response rate of 36 percent. Among the respondents are 47 asset managers that operate under the Collective Investment Schemes Act (35% response rate), twelve fund management companies (48% response rate) and eight institutions that are licensed as banks/securities dealers (29% response rate).

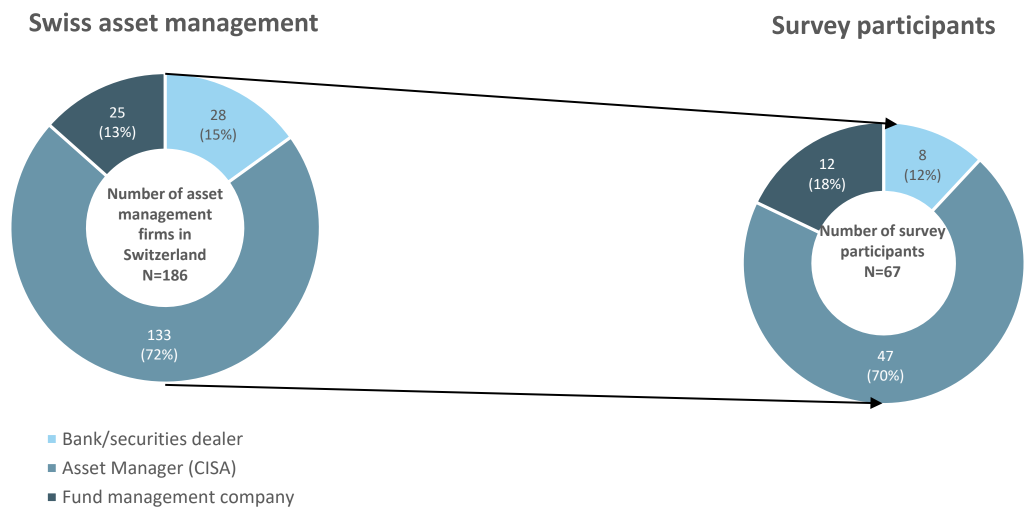

Figure 3.1: Asset management firms in Switzerland and number of respondents by institution

It is important to note that from a methodological perspective, all the findings and conclusions in this chapter are based on descriptive statistics and no statistical inference is applied. When it comes to the market sizing part, we use extrapolation techniques in order to determine the size of the Swiss asset management industry in terms of assets under management.

Figure 3.2 provides an overview of the assets under management reported by the surveyed asset management firms. About 60 percent of the asset managers have less than CHF 5 billion AuM, while about 20 percent indicate to manage AuM between CHF 5 to CHF 15 billion and another roughly 20 percent manage more than CHF 15 billion AuM. Among the largest asset management firms are seven CISA licensed asset managers, three banks/securities dealers, and five fund management companies.

3.2. Market Sizing

A key goal of this study is to provide a reliable and plausible estimate of the volume of assets managed in Switzerland at the end of 2018. For that purpose, we invoke the definition of asset management outlined in subchapter 1.1 and base our market sizing on discretionary institutional mandates and collective investment schemes including exchange traded funds. It is important to note that our projection is not based on a booking center view of asset management, but rather on a production view that takes into account assets that might not be held on a Swiss bank account, but are delegated in Switzerland for management purposes. In the context of this survey, 37 institutions provided quantitative data. The participating firms rank among the largest and best-known asset managers in Switzerland. Our data indicate that the surveyed asset managers account for about 84 percent of the total volume of assets managed in Switzerland.

The estimation of the market size relies on the same methodological approach as in last year's study. In a first step, we compute the growth rate of AuM managed in discretionary mandates from 2017 to 2018 (as of December 31), of the ten largest surveyed asset management firms. Because these asset management companies vary substantially in size, we weight each growth rate with the corresponding AuM and compute a weighted average. This weighted average serves as a proxy for the year-on-year growth in the segment of institutional discretionary mandates and is estimated to be -3.0 percent. For the year 2017, a total of CHF 947 billion are estimated to be managed in discretionary mandates in Switzerland. Applying the corresponding

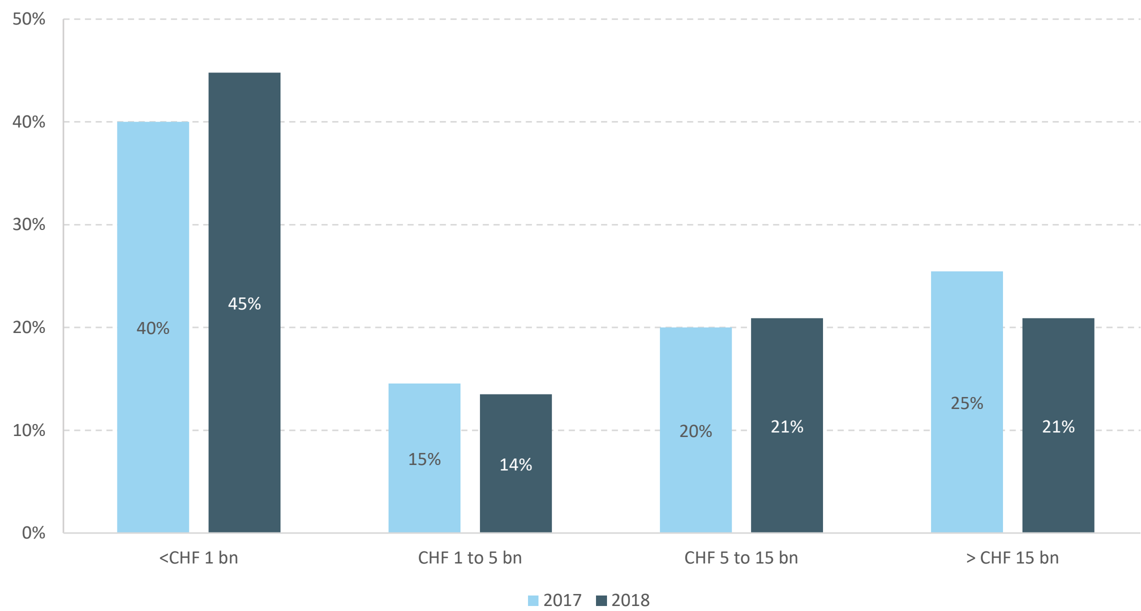

Figure 3.2: Assets under management of participating companies ($N_{2018}=67$, $N_{2017}=55$)

growth rate to this volume implies that at the end of 2018, the AuM managed in these mandates in fact slightly decreased to CHF 918 billion.

In addition to the assets managed in discretionary mandates, we add the volume of assets managed in collective investment schemes (CIS) under Swiss law. In this context, we assume that all CIS under Swiss law are effectively managed in Switzerland. However, it is important to note that this assumption may slightly overestimate the volume of assets managed in this segment. The relevant data are obtained from the *Swiss National Bank* (data.snb.ch). The assets managed in CIS under Swiss law decreased from CHF 880 billion in 2017 to CHF 856 billion in 2018, which implies a negative year-on-year growth of about 2.7 percent. This number is within roughly the same range as the decrease in AuM for discretionary mandates.

Finally, to estimate the volume of assets held in CIS under foreign law and managed by asset managers in Switzerland we use an improved estimation methodology based on survey data. For this purpose, we proceed as follows: First, we sum the assets in foreign CIS of those asset managers that reported numbers in our survey. Based on a cluster analysis (insurers, domestic banks, international banks/asset managers, alternative asset managers, others (small asset managers)) where we identify groups of firms with similar business models and value propositions, we compute the average ratio of foreign CIS relative to total CIS (foreign law and Swiss law) for each cluster (peer group). This ratio serves as a proxy for estimating the share of foreign CIS from the total volume of CIS for those asset managers in each cluster that only reported the total volume of assets managed in CIS and did not distinguish between CIS under foreign law versus CIS under Swiss law. For those asset managers that only reported the aggregated values of their assets managed in Switzerland, we again apply the ratio of foreign CIS relative to total CIS for each firm with respect to the corresponding cluster. In order to deduce the volume of total CIS managed by these asset management companies the ratio of total CIS relative to total assets from the corresponding peer group is taken as an approximation. Finally, in order to be able to consider asset management firms that did not participate in the survey but are within the scope of this study, we use data provided by *Swiss Funds Data*. More specifically, we consider funds domiciled abroad that are managed by these non-participating asset management firms and assume that all these funds are indeed managed in Switzerland. This assumption is justified because these asset management firms are relatively small and it is rather unlikely that they have a subsidiary abroad where portfolio management is conducted. Based on this methodological approach we estimate that about CHF 387 billion in AuM are managed in Switzerland in the form of CIS under foreign law. Compared to last year this implies a growth rate of about 1.7 percent in this segment. In this context, it is important to note that due to the change in methodology, the volume of assets managed in foreign CIS in 2017 and 2018 are not directly comparable. However, one conclusion that can be drawn from the data is that that the growth in assets managed in CIS under foreign law is stronger than for CIS managed under Swiss law.

One possible reason for Swiss-based asset managers to use foreign CIS is related to the distribution of investment funds to foreign customers. Very often, the chosen fund domicile is Luxembourg, which was the first country to implement the UCITS (Undertakings for Collective Investments in Transferable Securities) directive and established itself as a gateway to the European Single Market for funds. A key aspect of the UCITS regime is the European passport, which allows the distribution of any UCITS fund to investors in the EU once the financial market authority of the domestic state approves it. From an asset managers' perspective, this makes distribution to foreign clients more efficient and less costly.

Moreover, the stamp duty and withholding tax have an adverse impact on the competitiveness of Swiss asset management, which partly explains the use of foreign CIS. The abolishment of the stamp duty and the reduction of the withholding tax would potentially lead to a repatriation of business to Switzerland (Swiss Bankers Association & BCG, 2018). Finally, it has to be noted that alternative asset classes are very often managed in the form of foreign CIS. On a global scale the percentage of assets allocated to alternative products has been growing from 9 percent in 2003 to 15 percent in 2017 and is expected to grow to 16 percent in 2022 (BCG, 2018). Global growth in alternative products and the fact that the proportion of alternative asset classes in the asset allocation of Swiss-based asset managers is about 20 percent, provides another explanation why foreign CIS did exhibit a stronger growth relative to CIS under Swiss law and discretionary mandates.

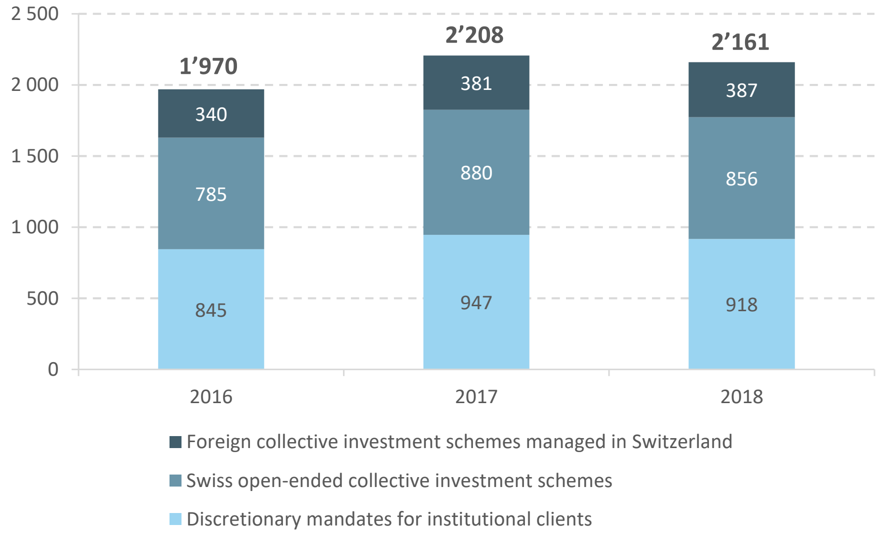

Figure 3.3: Assets managed in Switzerland for corporate and institutional clients in 2016, 2017, and 2018, in CHF billion

Based on the data provided by the surveyed asset managers and the above outlined estimation approach, the total volume of assets managed by banks, securities dealers, fund management companies, and *FINMA*-supervised asset managers in Switzerland at the end of 2018 amounts to CHF 2'161 billion. It follows that according to our definition of asset management outlined in subchapter 1.1 on a year-on-year comparison the total volume of assets managed in Switzerland fell slightly by 2.13 percent (see figure 3.3). A main driver of this development is related to the relatively large exposure of Swiss asset managers' asset allocation to the stock market and the sharp drop in global stock prices. Responses to this survey indicate that about 25 percent of assets in Swiss asset management are allocated to equity. In terms of stock market developments, the MSCI World Index decreased by about eleven percent in 2018. The Swiss Market Index (-11.7%) in Switzerland, the Nikkei 225 (-16.1%) in Japan, and the Stoxx 600 (-14.0%) in Europe fell by more than ten percent by the end of the year 2018. The S&P 500 in the US did better in relative terms, but was still down 7.3 percent in the observation period.[30] Overall, in 2018 global stock markets closed out their worst year since the financial crisis, which had a significant adverse impact on the volume of assets managed in Switzerland.

3.3. Overview of Asset Management Companies in Switzerland

Clients build the demand side of any business model. As illustrated in figure 3.4 about 60 percent of institutional assets under management in Switzerland are managed on behalf of pension funds and insurers. Overall, in 2018 pension funds are the largest asset owners and make up 42 percent of these assets. However, a comparison between domestic and foreign contracting clients reveals a slightly different view. Domestically, pension funds are still the largest asset owners, while banks belong to the largest contracting clients abroad. Other institutional clients consist of corporates, endowments, family offices or sovereign wealth funds. Domestically, this segment makes up about 25 percent of the asset owners while 20 percent of the contracting clients are located abroad.

[30] Data are taken from Bloomberg.

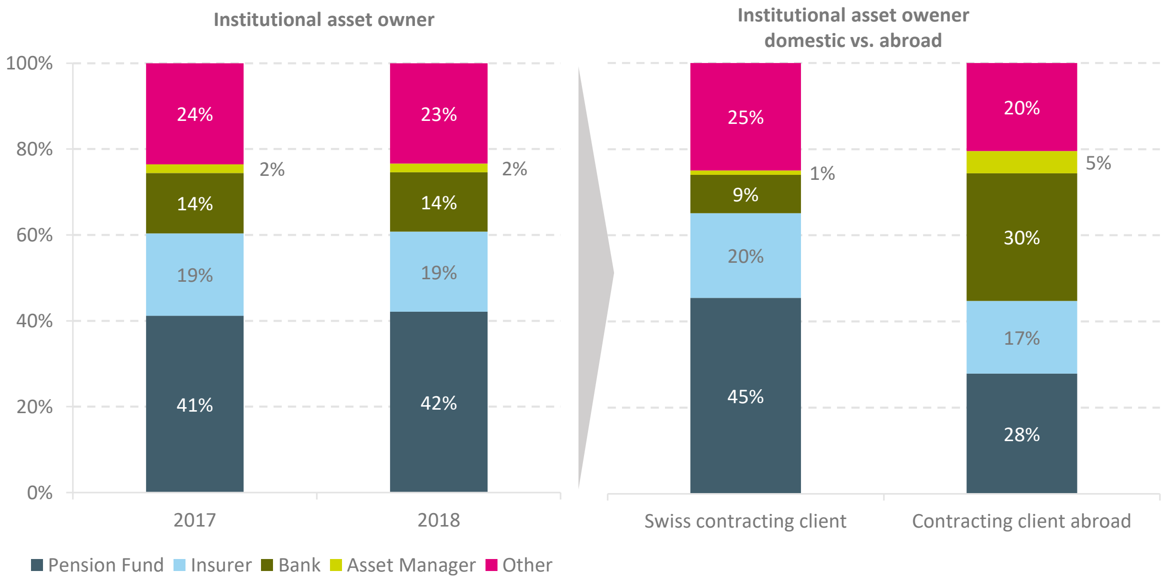

Figure 3.4: Relative share of institutional asset owners in AuM

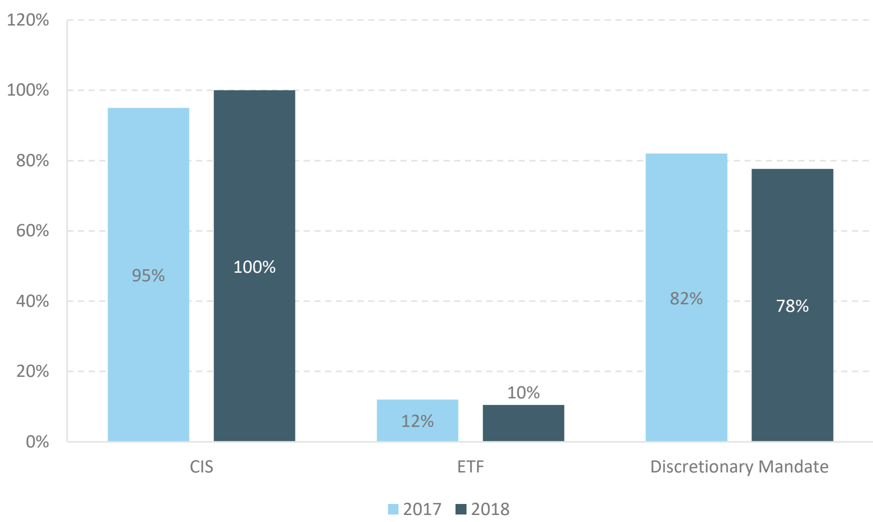

Figure 3.5: Services offered by Swiss-based asset managers (N_{2018} = 67, N_{2017} = 60)

Clients of asset management firms very often invest through a combination of investment funds and discretionary mandates. Figure 3.5 shows that all (100%) responding asset managers offer collective investment schemes as investment solutions to their clients, while 78 percent of Swiss-based asset management firms participating in this survey also provide their asset management services in the form of discretionary mandates. Finally, figure 3.5 indicates that only a small fraction of asset managers (10%) offer investment solutions based on exchange traded funds.

The value proposition of asset managers in Switzerland is broad and diverse, in the sense that asset

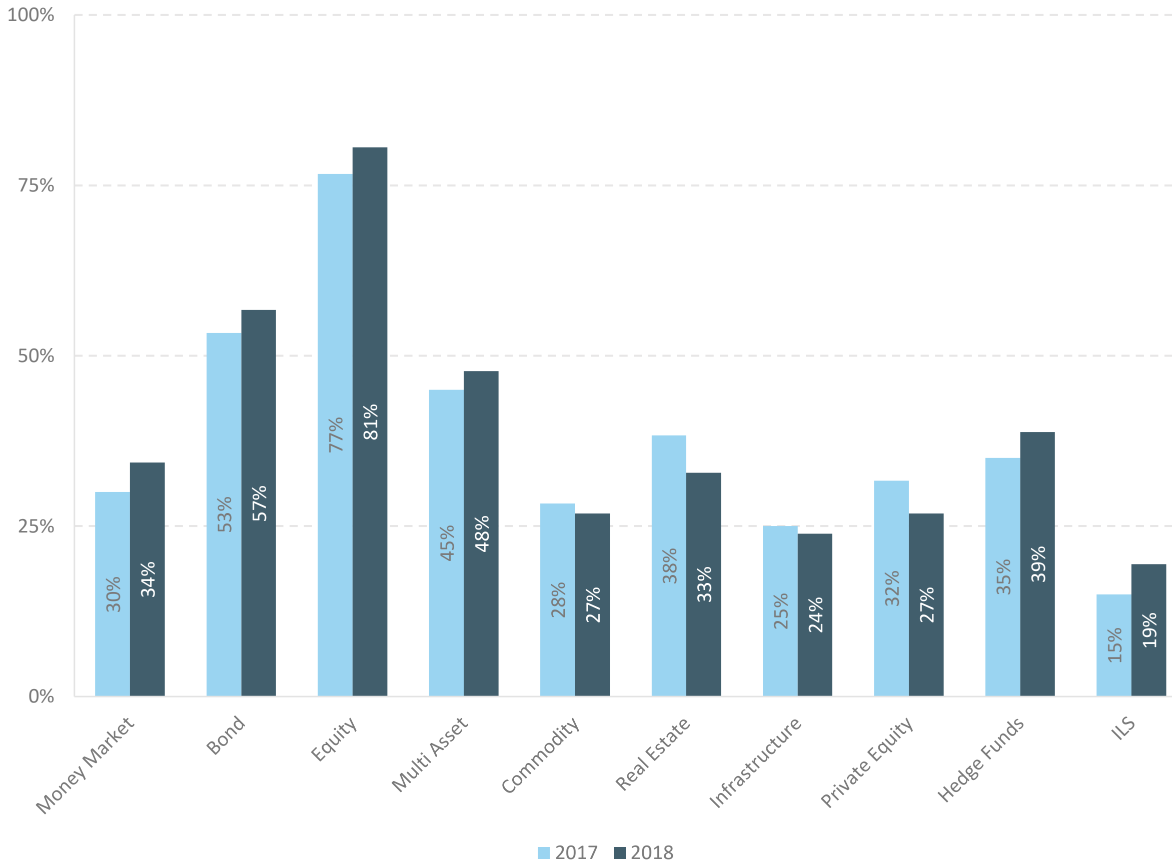

Figure 3.6: Key asset classes managed by surveyed asset managers in Switzerland ($N_{2018} = 67$, $N_{2017} = 60$)

managers offer products and expertise in a variety of traditional and alternative asset classes.[31] However, the asset allocation still reveals a dominance of traditional asset classes.

Figure 3.6 shows that among all surveyed asset management firms equity (81%) and bonds (57%) are the most frequently used asset classes, followed by multi asset approaches where various asset classes like equity, bonds, and others are combined. Compared to the 2017 data, no substantial changes with respect to key asset classes are observed in the results of this year's survey.

However, a striking feature of the data is that over 20 percent of the participating asset managers for this study revealed that they offer alternative assets such as hedge funds (39%), real estate (33%), private equity (27%), commodity (27%), and infrastructure (24%) within collective investment schemes or institutional mandates. Insurance linked securities (including catastrophe bonds), however, are less prevalent in the asset allocation of Swiss-based asset managers, though still 19 percent of the surveyed companies reported to make use of this asset class in their asset allocation.

Figure 3.7 indicates that with respect to assets under management, traditional asset classes (colored in dark blue) such as equity, bond, and multi asset make up about 80 percent of total assets under management among the surveyed asset management firms.[32]

[31] In this study alternative asset classes include real estate, hedge funds, commodity, private equity, insurance linked securities (including catastrophe bonds), and infrastructure.

[32] Note "Other" may include alternative asset classes.

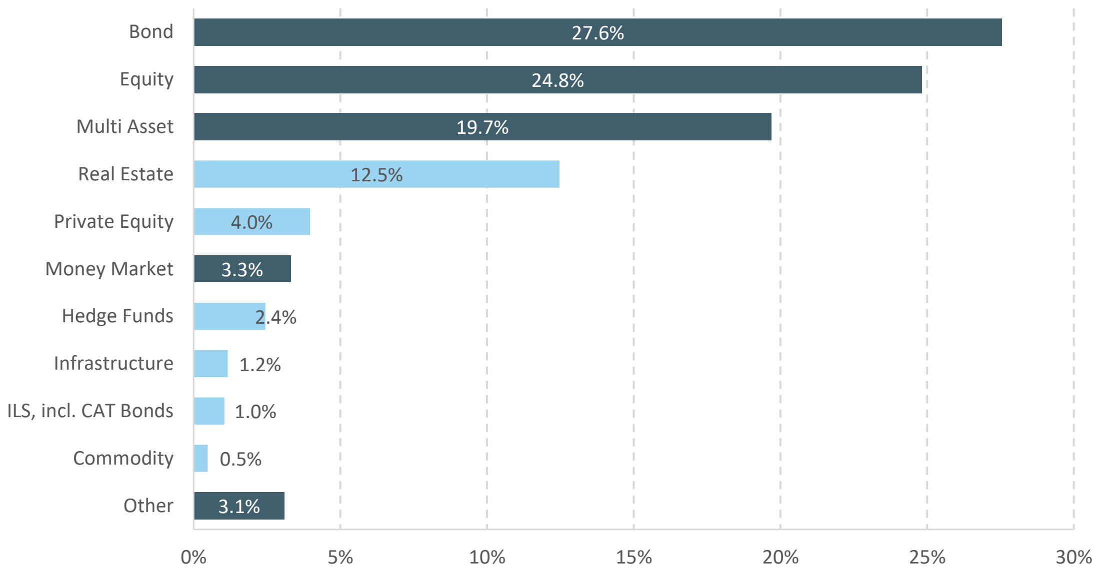

Figure 3.7: Asset allocation of asset management firms in Switzerland

According to the survey data, the proportion of alternative asset classes (colored light blue) in the asset allocation of asset management firms in Switzerland is about 20 percent. However, the low yield environment driven by expansionary monetary policy (conventional and unconventional) of major central banks implies that in the search for yield, the allocation of assets to non-traditional, less liquid asset classes is likely to increase.

The value proposition of asset managers can further be differentiated with respect to the chosen investment approach, where a distinction between active and passive investment management is made. Among the surveyed asset managers, about 80 percent indicate using an active investment approach, while only two percent follow a passive approach. The remainder of respondents state that their portfolio management is based on active as well as passive investment strategies.

Figure 3.8 shows that in terms of volume, 72 percent of the assets managed in Switzerland are actively managed, while 28 percent are managed passively. Moreover, our data indicate that 66 percent of the assets managed in discretionary mandates are managed actively and 34 percent are managed passively. For the production of passive investment products in the form of collective investments schemes, economies of scale are key in order to maintain low operating costs to compensate for narrow revenue margins. In Switzerland, only 21 percent of CIS including ETFs are managed passively while 79 percent are managed

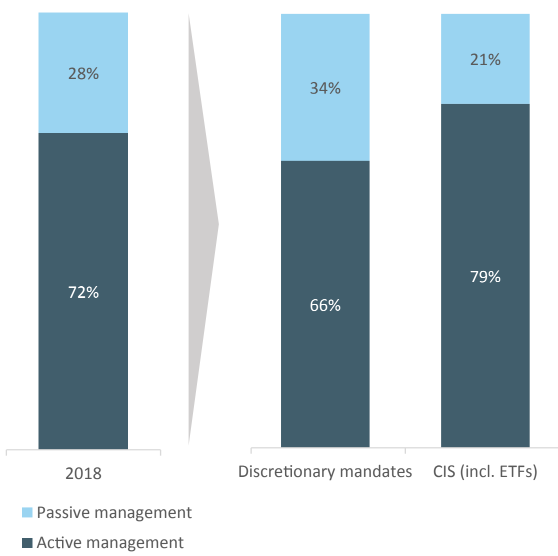

Figure 3.8: Passive vs. active management in the Swiss asset management industry

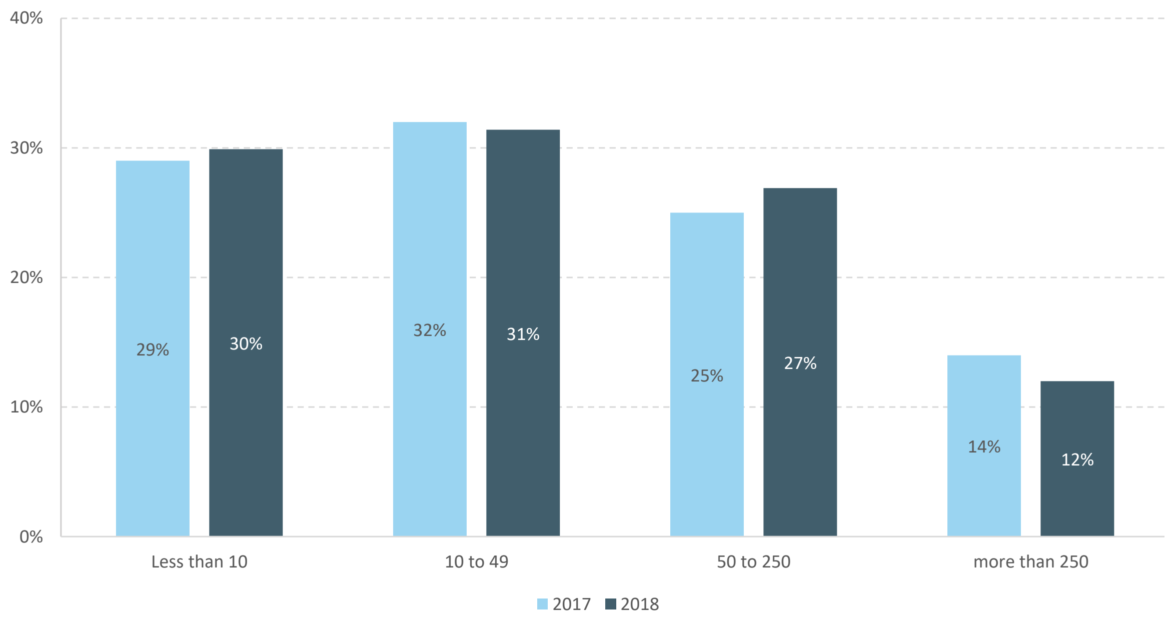

Figure 3.9: Proportion of asset management companies by employees in Switzerland ($N_{2018}=67$, $N_{2017}=56$)

actively. The market for passive products is dominated globally by Anglo-Saxon asset management firms, which already have the scale to compete successfully in this market. From a strategic perspective, our data imply that asset managers operating in Switzerland tend to follow an active portfolio management approach which tend to offers higher margins. This is also consistent with the previous observation that Swiss-based asset managers have a relatively strong exposure to alternative asset classes, which are frequently based on an active portfolio management approach. A focus on alternative asset classes requires specific knowledge and thus a well-educated labor force. As illustrated in section 2.3.2 of this study Switzerland's strong higher education system offers a pool of highly educated people and builds the foundation of a domestic workforce with a high level of expertise. The availability of employees with a quantitative background such as computer science, economics, engineering, and mathematics are important for driving innovation in the asset management industry.

The previous section shows that qualified employees are the key resource in asset management. As depicted in figure 3.9 almost 90 percent of the asset management companies participating in this survey and operating in Switzerland employ no more than 250 people in full-time equivalents (FTE). This implies the majority of asset management companies are small and medium-sized enterprises (SMEs)[33].

In particular, 20 firms (30%) exhibit a workforce of less than ten FTEs, while 21 asset managers (31%) employ ten to 49 full-time employees. About 40 percent of the respondents (26 companies) employ more than 50 FTEs. Among these larger asset managers, 18 firms (27%) exhibit a workforce between 50 and 250 FTEs, while eight companies employ more than 250 FTEs in Switzerland. The average employment for Swiss-based asset management firms is 124 while the median is 23. Our survey data indicate that about 8'337 FTEs are directly employed in Swiss asset management. In order to obtain an estimate about the total number of employees working in the asset management industry in Switzerland we extrapolate this number proportional to the estimated AuM. More specifically, as shown in the market sizing part of this study, the surveyed asset managers account for about

[33] In Switzerland 99 percent of the companies are SMEs, which employ about two-thirds of the workforce (Federal Statistical Office, 2019e).

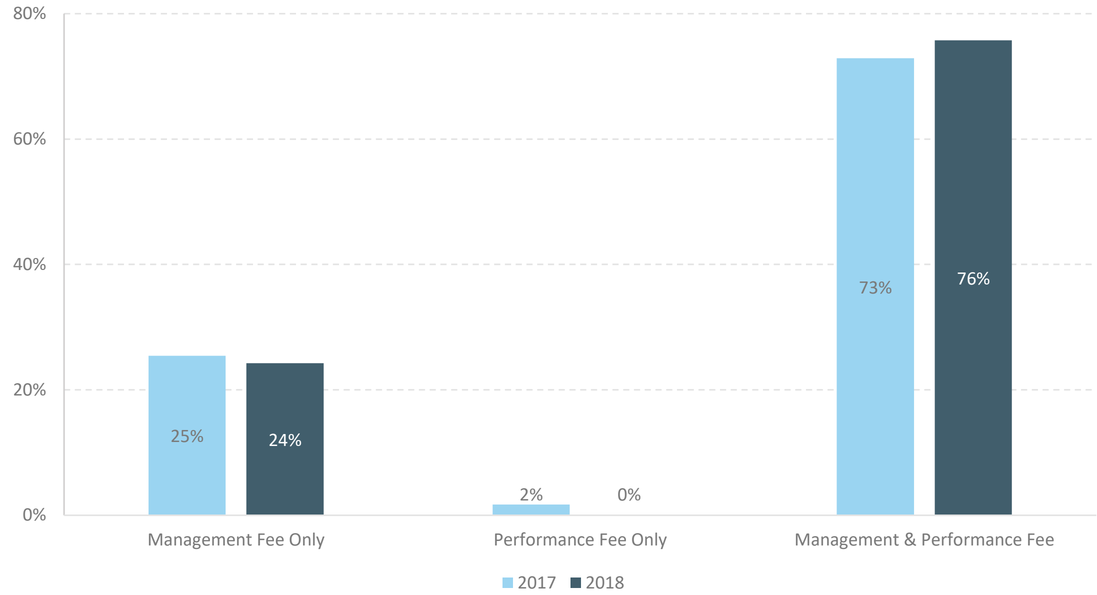

Figure 3.10: Proportion of asset managers by revenue model ($N_{2018}=66$, $N_{2017}=59$)

84 percent of total AuM[34]. Based on this observation, we estimate that around 9'900 people are directly employed by the asset management industry in Switzerland, which corresponds to a three percent growth in employment relative to last year's survey. However, from an economic perspective and to measure the contribution of the asset management industry to the overall economy, not only direct employment in asset management needs to be considered. In addition, it is important to account for indirect employment associated with related services and support functions such as accounting, auditing, custodianship, IT, legal, marketing or distribution (EFAMA, 2018). In this context, the French asset management association estimates that every direct employment in asset management gives rise to 4.6 FTE jobs in related services (AFG, 2011). Using this ratio for Switzerland implies that about 45'600 people are indirectly employed in services related to asset management. Based on this assumption we estimate that the Swiss asset management industry accounts for about 55'500 jobs in total. Using the same methodological approach, the *European Fund and Asset Management Association* (EFAMA) estimates that total employment in the European asset management industry corresponds to approximately 610'000 jobs (EFAMA, 2018). Among the asset managers (N = 47) that revealed information about the future growth of full-time equivalents about 40 percent expect no growth in employment in 2019, while about 50 percent expect moderate growth in their workforce. These expectations are more conservative compared to the 2018 survey where over 80 percent of the respondents expected moderate or even strong growth in employment.

Another important aspect of any business model is revenue generation. In the asset management industry revenue generation is fee based and depends on the assets under management or is contingent on achieving some predefined performance measure.

Figure 3.10 shows that among the respondents of the surveyed asset managers, 76 percent use both management and performance fees to generate revenues while only 24 percent of the asset managers solely charge a management fee. Compared to the 2017 survey data these proportions remained virtually unchanged.

[34] The market sizing is discussed in detail in section 3.2.

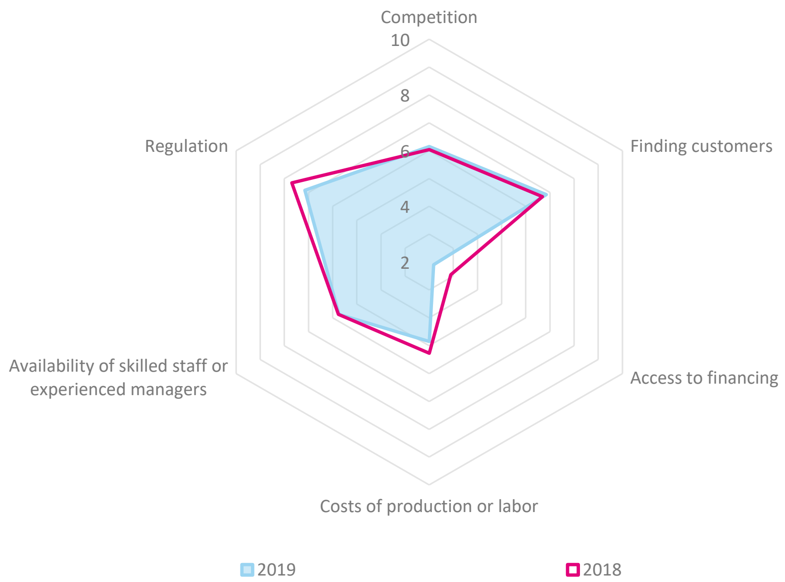

Figure 3.11: Challenges for asset management companies ($N_{2019} = 67$, $N_{2018} = 58$)

On the production side of a business model, key partners include the most important relationships of a company in order to deliver its value proposition. Asset management firms rely on a broad network of different partners to provide their services. Among these partners are very often banks, insurance companies, auditing firms or platform providers.

3.4. Sentiment Analysis of Asset Management Companies in Switzerland

In last year's study, a sentiment survey among asset management firms in Switzerland was conducted in order to evaluate a selection of challenges faced by the industry. In this year's sentiment analysis, we evaluate the same challenges and compare them with last year's answers. Moreover, we extended the questionnaire to ask asset management firms where they see opportunities for their business. Finally, since regulation was identified as the most pressing challenge in the 2018 survey, we developed a questionnaire to gauge the sentiment related to regulatory issues and to provide a deeper analysis as to what might explain this finding.

3.4.1. Challenges for Asset Management

The average results of the surveys conducted in the years 2018 and 2019 are illustrated in figure 3.11 on a scale from 1 (not pressing) to 10 (extremely pressing). As in the 2018 survey, with an average score of 7.2, regulation was again identified as the most pressing challenge faced by asset management firms in Switzerland, followed by finding customers (6.8), competition (6.1), the availability of skilled staff or experienced managers (5.7), the costs of production or labor (4.8), and access to financing (2.2). However, on a year-to-year comparison, the relative importance of regulation decreased by 0.70 units[35].

The two most pressing challenges following regulation are finding customers and competition. While the score for finding customers remained unchanged compared to last year's results, competition is perceived as slightly more challenging (+0.1). The domestic market in Switzerland has a limited size and the competition in the asset management industry is both global and very intense, making it a tough business environment. In order to increase the customer base and acquire new funds it is important to face

[35] In subchapter 3.4.3 we provide a more detailed analysis in order to get a better understanding about the specific regulatory concerns of the asset management industry in Switzerland.

global competition. However, a prerequisite to do so is to have non-discriminatory access to international markets. In this context, compliance with international regulatory standards is a fundamental requirement for Swiss-based asset management firms to be able to export asset management services and products abroad. Due to its geographic proximity, for Switzerland as non EU/EEA country, access to the European Single Market based on equivalence and a standardized principle-based recognition process at the EU level are essential (Swiss Bankers Association & BCG, 2018). With an average score of 5.7 the availability of skilled staff or experienced managers seems to pose another important challenge to Swiss-based asset management firms. This finding reflects the high demand for qualified employees and the fact that there is a tendency for the demand for talent to exceed supply. For Swiss-based asset management firms it is thus important to have access to skilled labor on a global scale, which might require implementing a less restrictive policy in providing visas for foreign employees from outside of the EU/EEA area. Moreover, higher expenditures on tertiary education are critical in order to mitigate the scarcity of people with university degrees relevant for the asset management industry. As in last year's sentiment analysis, costs of production or labor (5.3) and access to financing (2.9) are identified as the least pressing challenges. In this context the low value for access to financial capital is no surprise, since capital requirements in asset management are substantially lower compared to the banking or insurance sector, as asset management firms are not involved in balance sheet transactions.

3.4.2. Opportunities for Asset Management

The average results of the survey with respect to opportunities for the Swiss asset management industry are illustrated in figure 3.12 on a scale from 1 (not important) to 10 (extremely important).

In terms of opportunities for the asset management industry, Swiss-based asset management firms see the largest opportunities with an average score of 7.3 in specialization and the least opportunities in passive investments (2.6). This is consistent with the strategic view that asset management firms need to choose a business model where they focus either on cost leadership (passive investments) or specialization (alpha generation) in order to have a competitive advantage and to be sustainably profitable (Bain & Company, 2017). In the context of figure 3.13, it follows that on average Swiss-based asset management firms see potential for their business as niche providers in high margin segments with comparably lower

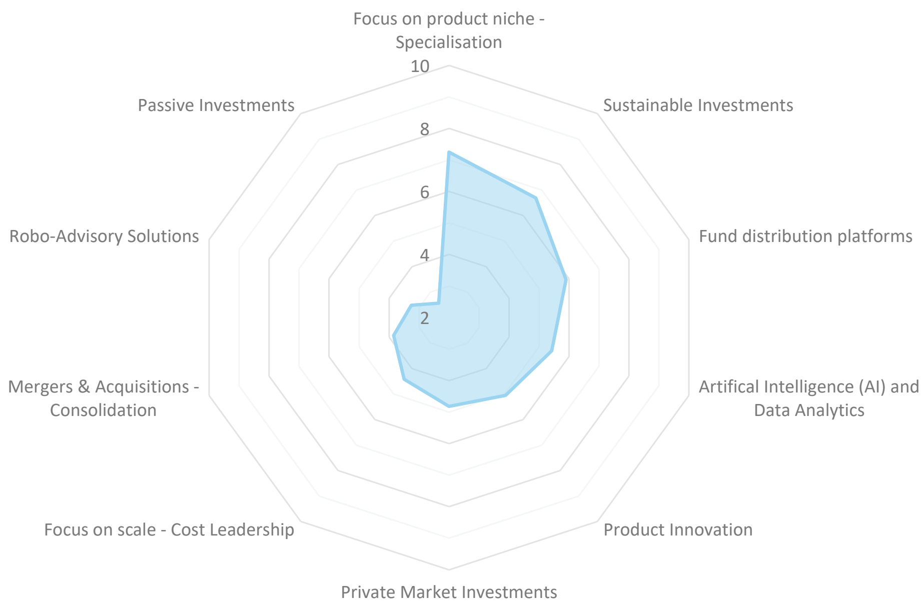

Figure 3.12: Opportunities for asset management companies (N_{2019} = 67)

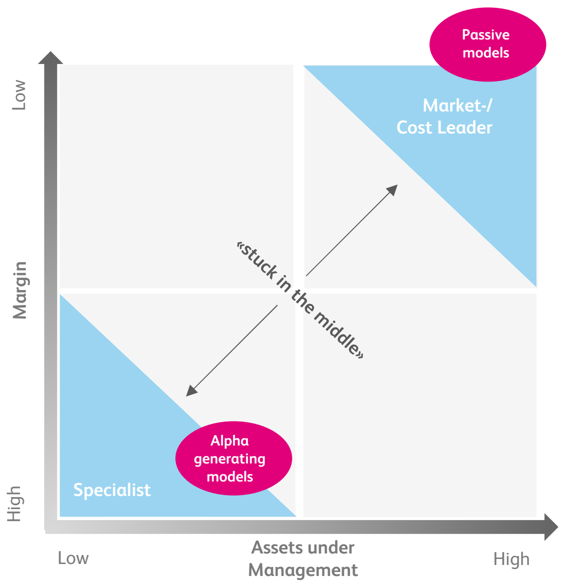

Figure 3.13: Strategic positioning of asset management firms (Source: based on Bain & Company, 2017)

assets under management, rather than as market-/cost leaders in the passive investment segment where margins tend to be rather low but assets under management high. This view is further corroborated by the fact that cost leadership itself received a comparably low average score of 4.4 and is only ranked on seventh place among the ten opportunities in the sentiment questionnaire.

Moreover, the sentiment analysis reveals that sustainable investing, with an average score of 6.7, is evaluated as the second most important opportunity for the asset management industry. In this context the Swiss asset managers' survey H1/2019 conducted by *AMP* shows that 60 percent of the surveyed asset managers see the main reason for future growth in sustainable investments in the asset owners' strong demand for these products (AMP, 2019). Fund distribution platforms (5.9), working as intermediaries between distributor and asset managers, are also ranked among the top three opportunities. A potential explanation for this might be related to the upcoming regulatory environment. When FinSA enters into force, financial services providers will need to adhere to certain rules of conduct with respect to investor protection and transparency (similar to MiFID II). Against this background, the importance of fund distribution platforms will become more important and in particular, smaller funds will very likely strengthen their presence on these platforms (Bain & Company, 2017). In terms of technology, AI and data analytics (5.4) seem to be rather promising avenues for Swiss-based asset management firms to take[36] while the integration of robo-advisory solutions (3.3) received the second lowest score and is therefore currently not seen as a serious opportunity. However, from the vantage point as an additional distribution channel and in the light of the on-going digitization of the asset management industry, robo-advisory solutions might become more relevant in the near future[37]. Moreover, this sentiment analysis also reveals that product innovation (5.0) seems to be of rather medium importance to the majority of surveyed asset management firms. Finally, M & A consolidation received the third lowest average score (3.8) and does not seem to be of major importance for Swiss-based asset management firms. A possible explanation for this finding can be traced back to the fact that asset management firms in Switzerland follow a specialization strategy where large economies of scale are not a key requirement to be successful. However, for cost-leaders in the passive investment segment, acquisitions are an effective way to increase their market share and expand their scale (Bain & Company, 2017).

To receive a deeper understanding of how Swiss-based asset management firms evaluate opportunities in the sector we analyze to which extent the surveyed opportunities depend on firm size in figure 3.14. In this context, we approximate the size of an asset management company by its assets under management. For this purpose we use the same size classification as in our 2018 study (< CHF 1 bn, CHF 1 to 5 bn, CHF 5 to 15 bn, and > 15 bn).

Figure 3.14 illustrates that the largest asset management companies (> CHF 15 bn in AuM) have one of the highest scores with respect to all opportunities except for the focus on specialization and cost leadership. This constitutes an opposing view compared to the

[36] A more detailed overview of AI and data analytics and its application in the asset management industry is provided in subchapter 2.4.3 of this study.
[37] In chapter 4 of this study we provide an in-depth view of the potential of robo-advisory solutions in a distribution context.

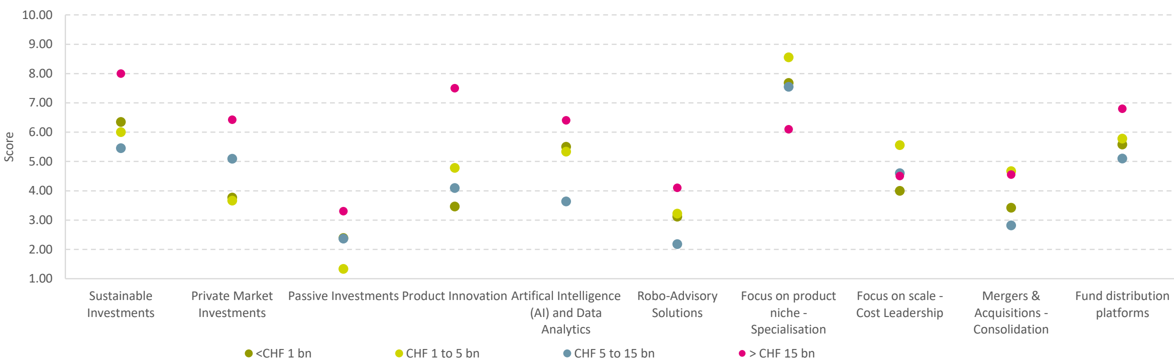

Figure 3.14: Opportunities faced by asset management companies in Switzerland relative to their size measured by AuM

overall consensus indicated in figure 3.12. Compared to the average view depicted in figure 3.12, sustainable investments is evaluated as the most important opportunity by the largest asset managers.

Overall, the dispersion in evaluating opportunities is rather wide among the different size categories but a key finding is that specialization is important for small and medium sized asset management firms, while passive investments are not of major importance for these segments. This insight corroborates the view that a clear strategic positioning as a specialist and the focus on product niches matters for asset management firms in Switzerland in order to build a competitive advantage.

3.4.3. Regulation

The previous sentiment analysis revealed that regulation is perceived as the most pressing challenge by asset management firms in Switzerland. This is consistent with the results of the sentiment analysis conducted in the context of the 2018 study and shows that regulation seems to be of major concern for the asset management industry in Switzerland. To get a better understanding as to what the driver of this sentiment is and what the regulatory concerns might be, we use a questionnaire with ten items based on an item specific scale to shed more light on this issue.[38]

In terms of regulatory compliance, figure 3.15 illustrates that almost 85 percent of the surveyed asset

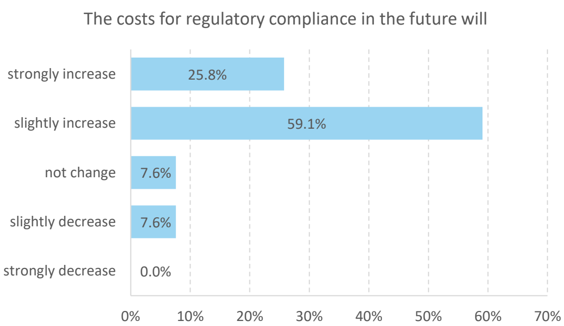

Figure 3.15: Regulatory costs are expected to increase by the majority of surveyed asset management firms (N=66)

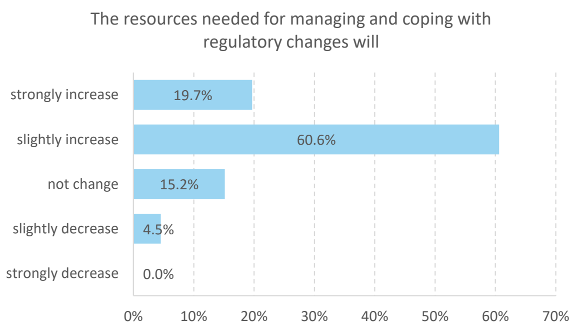

Figure 3.16: Resources needed for managing and coping with regulatory changes are expected to increase by the majority of surveyed asset management firms (N=66)

[38] A detailed description of the methodological approach is given in the methodology section to the sentiment analysis in subchapter 1.4 of this study.

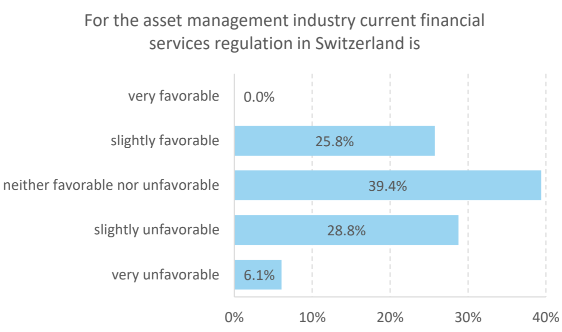

Figure 3.17: Perception of current financial services regulation (N=66)

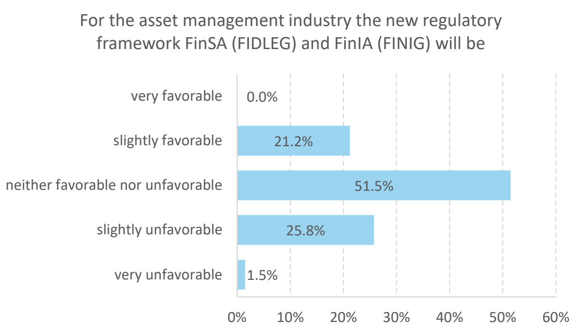

Figure 3.18: Expected impact of new financial services regulation (N=66)

managers believe that these costs will increase in the future and only a minority of companies expect no change or even a slight decrease in regulatory costs. The expected increase in the costs for regulatory compliance is also consistent with the finding in figure 3.16 that about 80 percent of the survey respondents expect that the resources needed for managing and coping with regulatory change will increase. A direct implication of these higher costs of regulatory compliance is likely the additional margin pressure and an adverse impact on profitability.

About 40 percent of the surveyed asset managers have a neutral view on the current financial services regulation in Switzerland, as illustrated in figure 3.17, and believe that the current regulatory framework is neither favorable nor unfavorable for their business. However, about one quarter of those questioned think that regulation in Switzerland is slightly favorable, while about 30 percent perceive current regulation as slightly unfavorable. Only a minority of six percent of Swiss-based asset management firms claim that current regulation is very unfavorable for their business.

In terms of the new regulatory framework, FinSA and FinIA, which is expected to enter force on January 1, 2020, a similar picture emerges as shown in figure 3.18. About half of the respondents believe that the new regulatory framework is neither favorable nor unfavorable for the asset management industry in Switzerland, while about a quarter is more pessimistic and expects that the new financial services law will be rather unfavorable. This implies a certain level of skepticism with respect to the implementation of FinSA and FinIA.

Another important issue when it comes to evaluating a regulatory framework is the balance between regulatory costs and regulatory benefits as depicted in figure 3.19. About seven out of ten asset management firms stated that this relation is slightly or even very unbalanced. This supports the hypothesis that regulatory costs are perceived as high by the majority of asset management firms.

When it comes to transitional periods to implement new regulatory requirements, about half of the respondents assess the available time frame as sufficient or very sufficient as illustrated in figure 3.20. About one third have a neutral view on this issue while the remaining 18 percent think the time to implement new regulatory requirements is not sufficient and longer transitional periods are required.

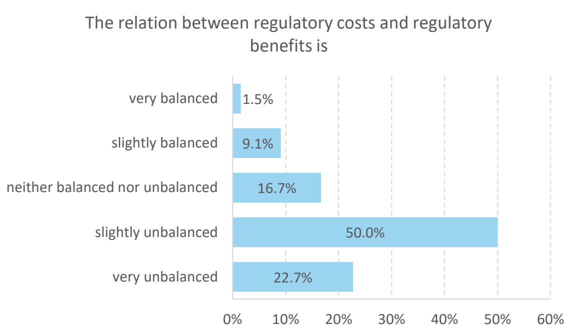

Figure 3.19: Relation between regulatory costs and benefits (N=66)

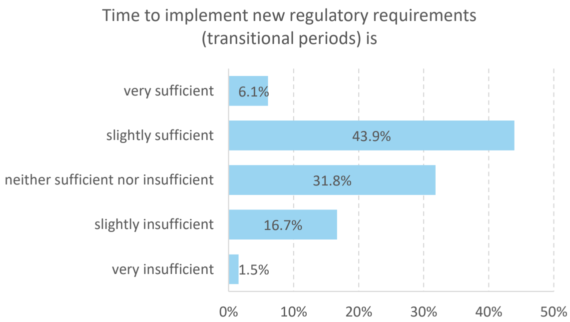

Figure 3.20: Time to implement new regulatory requirements (N=66)

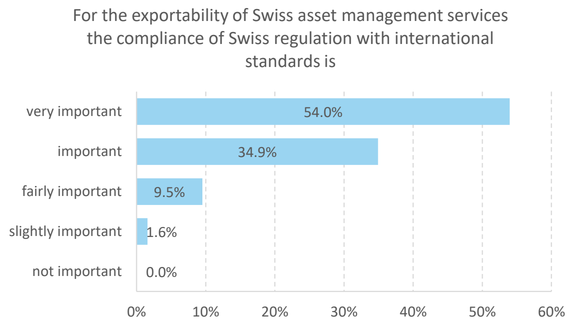

Figure 3.21: The compliance with international standards as a key requirement for the exportability of Swiss asset management services (N=63)

In chapter 2.1 of the PEST-analysis it is argued that the compliance with international standards is a key requirement for exporting asset management services and products abroad. This position, illustrated in figure 3.21, is supported by almost 90 percent of the surveyed asset managers, which evaluate the compliance of Swiss regulation with international standards as very important or important for the exportability of Swiss asset management.

Figure 3.22 illustrates that in terms of regulatory improvements, the abolishment of the stamp duty and a reduction of the withholding tax are seen as very important or important by about 73 percent of survey respondents while another 19.7 percent evaluate this matter as fairly important.

The stamp duty potentially has an adverse impact on the turnover in financial markets in Switzerland and reduces the effectiveness of technology that would allow for a more frequent re-balancing of portfolios. Eliminating these tax burdens would have a positive impact on the competitiveness of Swiss asset management and increase financial market efficiency in Switzerland (Swiss Bankers Association & BCG, 2018).

As illustrated in figure 3.23 more than half of the respondents evaluate the collaboration between the regulator and the asset management industry as very close or slightly close. Only around ten percent characterize their relationship to the supervisory authorities as distant.

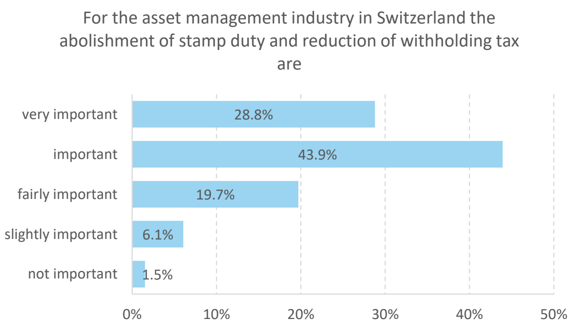

Figure 3.22: Abolishment of the stamp duty and reduction of the withholding tax (N=66)

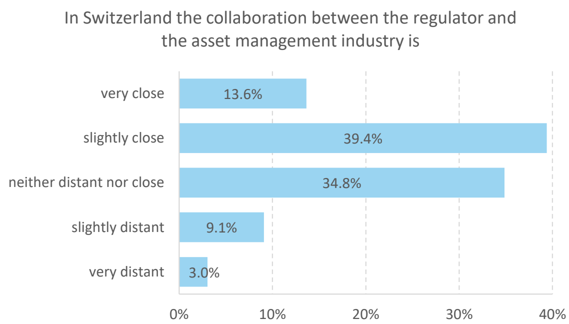

Figure 3.23: Collaboration between the regulator and the asset management industry (N=66)

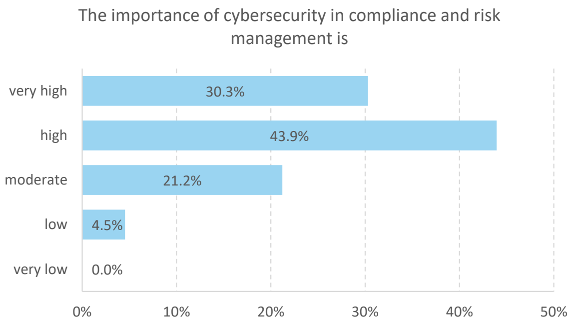

Figure 3.24: Cybersecurity in compliance and risk management matters (N = 66)

Finally, the importance of cybersecurity in compliance and risk management is evaluated as very high or high by about 74 percent of the surveyed asset managers, which indicates that Swiss-based asset management firms are aware that cyber risks can have a very adverse impact on their business (see figure 3.24).

In summary, the deeper analysis of the regulatory sentiment shows that the increasing costs of regulatory compliance and the expected increases in resources required to be compliant with these rules are the main regulatory concerns of asset managers in Switzerland.

4. Robo-Advisory – Digital Distribution of Asset Management

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4.1. Introduction

The global robo-advisory industry managed assets worth around USD 541 billion in 2018, 79 percent of which in the US. With USD 430 billion assets under management (AuM), the US are the unprecedented leader in this market, followed by China, the UK, Germany, and Canada. Together, these top five countries share approximately 98 percent of the global robo-advisory market (Statista, 2019).

Although digital investment management and passive investing are becoming increasingly important, the robo-advisory market in Switzerland has not yet gained momentum. With total AuM worth USD 324 million in 2018, the Swiss robo-advisory industry lies far behind the global market leaders. The relative importance of the industry, as measured by the ratio of robo-advisory AuM to the country's total wealth (Credit Suisse, 2018), is also rather low in Switzerland (0.01%) in comparison to the US (0.48%). The penetration rate of 0.01 percent, measured by the share of robo-advisory users among the country's population, lags even further behind the US (2.01%).

The robo-advisory solutions offered by *Vanguard* and *Charles Schwab* in the US with AuM of USD 130 billion and USD 37.7 billion (Backend Benchmarking, 2019) cover over 25 percent of the world market share. By using robo-advisory solutions as an additional distribution channel for their in-house products, these companies can generate revenues along multiple parts of the robo-advisory value chain. In combination with economies of scale resulting from their huge customer base and scalable infrastructure, this setup allows *Vanguard* and *Schwab* to offer one of the industry's cheapest solutions.

This chapter aims to shed some light on the Swiss robo-advisory market and compare it to the global market leaders. In this context, it also discusses possible synergies between the asset management and robo-advisory industry.

4.2. Business Models of Robo-Advisors

Narrowly defined, robo-advisors are purely digital wealth managers without human intervention. Generally, they perform three main steps. First, the client's risk preferences are evaluated based on an online questionnaire. Second, a computer program constructs a diversified model portfolio consisting of low-cost ETFs and index funds which match the client's risk profile. Third, to ensure the ongoing alignment with the client's risk preferences, the resulting portfolio is rebalanced on a regular basis (Ringe and Ruof, 2018, p. 4).

Many robo-advisors deviate from this narrow definition in two main ways. On the one hand, some offer active asset management instead of purely passive investments and on the other hand, some provide human-supported advice in addition to the digital user interface. This is in line with the business model classification by Dietrich et al. (2015) and the review in the IFZ FinTech Study (2019).

The distinction between an active and passive investment style can be made based on the portfolio construction and investment universe level. With respect to the investment universe, a passive approach relies on ETFs and index funds only, while an active approach includes further instruments such as for example single stocks. On the portfolio construction side, a passive approach is limited to regular rebalancing towards the strategic allocation, while an active approach includes further services such as risk management, tactical allocations or other alpha generating strategies.

The illustrated matrix (see Table 4.1) categorizes Swiss robo-advisors along the investment style dimensions based on the information provided on the companies' websites. More specifically, each of the four cells provide a combination of an available investment universe with an approach to portfolio construction.

The global market leaders *Vanguard* and *Schwab* mainly offer the purely passive approach. A value-proposition beyond a cost-effective, well diversified passive investment requires a greater level of asset manager engagement (Bennyhoff et al., 2018) and is hence associated with higher fees, lower transparency, and higher complexity. Nevertheless, according to our classification, only six out of 13 Swiss robo-

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Investment universe</th></tr>
<tr><th>Active</th><th>Passive</th></tr>
<tr><th rowspan="2">Portfolio construction</th><th>Active</th><td>Swissquote ePrivate Banking
Descartes / investclick.ch</td><td>Selma
clevercircles
Saxo Select</td></tr>
<tr><th>Passive</th><td>Yova</td><td>True Wealth / Digifolio
Simplewealth
Elvia e-invest
VZ Finanzportal
Investomat</td></tr>
</table>

Table 4.1: Breakdown of Swiss robo-advisors in terms of investment universe and portfolio construction

advisors evaluated in our study are purely passive in both their product selection and portfolio construction. All other players deviate from the purely passive approach and integrate active components in their strategies. Also, with only a few exceptions, Swiss robo-advisors do not provide any information on the asset allocation and underlying instruments used in the portfolios.

As mentioned above, besides their investment management style, a further distinction should be made between pure robo-advisors and hybrid models with human-supported advice (Dietrich et al., 2015). While most Swiss players appear to use a purely digital customer channel, the transparency with respect to the level of personal support is rather low. In the US, a growing number of established and new players have offered hybrid business models that – unlike pure robo-advisors – explicitly include personal guidance on investment matters.

Typically, this customer channel differentiation is clearly reflected in the pricing and required account minimums. *Vanguard's* personal advisor probably constitutes the most prominent example of a hybrid model. It provides personalized advice in order to construct a portfolio that is then managed by *Vanguard's* technology platform (Bennyhoff and Kinniry, 2016). The service requires an initial investment of USD 50'000. Offered at a 0.3 percent management fee, it is one of the cheapest hybrid models in the industry. *Charles Schwab's* offering includes both a pure robo-advisor service at a 0 percent management fee and USD 5'000 account minimum, as well as a hybrid model at a 0.28 percent management fee and USD 25'000 account minimum.

4.3. Costs

Robo-advisory fees generally consist of an all-in fee, which includes a management fee, custody fee, and transaction costs. Product costs, stamp taxes, and FOREX expenses are not included. The average all-in fee charged by Swiss robo-advisors is 0.73 percent. The average product fees are around 0.22 percent.

As figure 4.1 shows, although Swiss robo-advisory fees are below those charged in traditional wealth management, they are relatively high compared to the fees in the US. One of the reasons might be the higher competition in the US market with at least 200 players, and in particular the competition stemming from robo-advisors launched by *Vanguard* or *Charles Schwab.* These companies employ robo-advisory as an additional distribution channel for in-house products and can thereby charge an all-in fee of as low as 0 percent, such as the Charles Schwab Intelligent Portfolio. The robo-advisory landscape in Switzerland is different. All players use instruments from external providers and hence do not benefit from such economies of scale. Moreover, while custody and brokerage are mostly outsourced to third parties in Switzerland, big US players, including *Betterment* and *Wealthfront,* have built up their own in-house custody and brokerage solutions, thereby allowing for more competitive pricing.

As illustrated in figure 4.2 and 4.3, Swiss robo-advisors charge substantially higher all-in fees than their US peers, independent of management style. Moreover, the difference in fees between the US and Switzerland is particularly large for incumbent robo-advisors (see figure 4.3). While solutions offered by *Vanguard* and *Charles Schwab* in the US drive average robo-advisory fees down, incumbent solutions in Switzerland are equally expensive as start-ups.

Furthermore, average product fees for robo-advisors in Switzerland (0.22%) are also twice as high as those charged by their US peers (0.11%). Our analysis has identified two main drivers. First, an ETF from the same provider with the same underlying index is almost twice as expensive for a Swiss customer as for a US customer. Second, due to their home bias and/or currency perspective, Swiss investors invest in ETFs on local indices or CHF-hedged, which leads to even higher costs for Swiss investors.

4.4. Robo-Advisory as a Distribution Channel

In the US, the break-even profitability for a standalone robo-advisor is approximately USD 16–40 billion in clients' assets, a size that even leading robo-advisor start-ups such as *Betterment* and *Wealthfront* have not yet been able to achieve (Morningstar, 2018). This high threshold for profitability led to a trend towards partnerships between robo-advisors and established asset managers, wealth managers and banks or integrated business models.

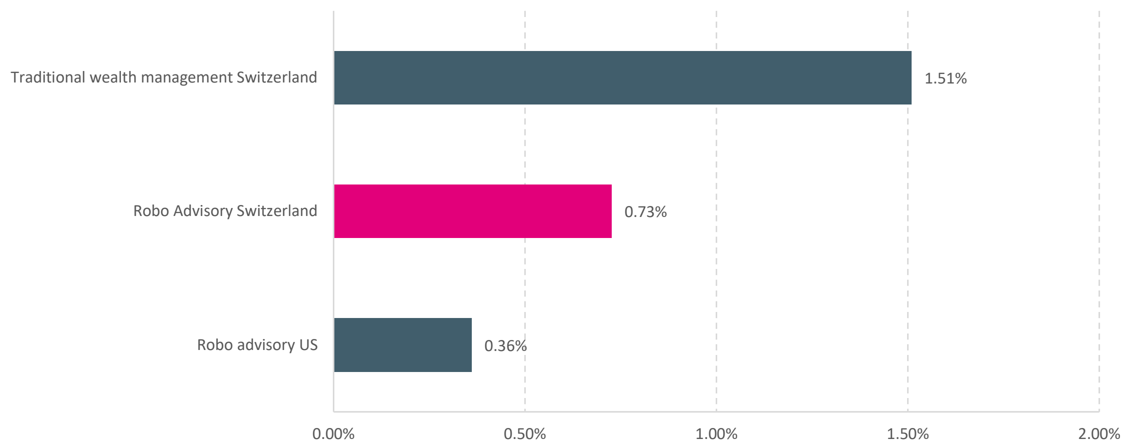

Figure 4.1: Average fee structure for traditional wealth management vs. robo-advisory (Note: These fees do not include product costs, taxes, and FOREX)

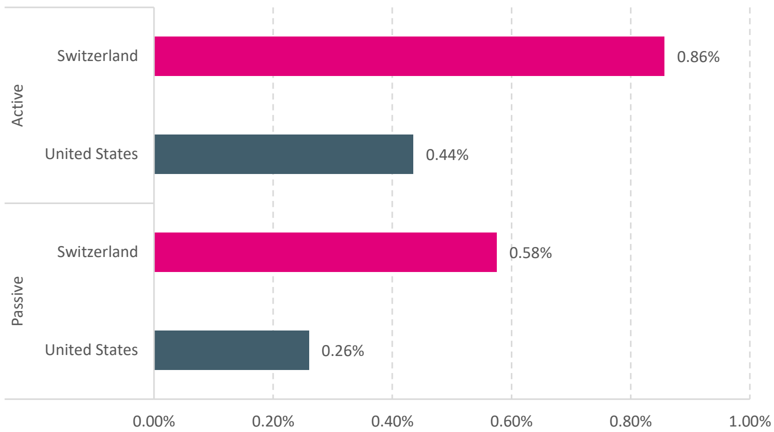

Figure 4.2: Comparison of all-in fees of Swiss and US robo advisors based on management style (passive vs. active)

Asset management product providers such as *BlackRock, Charles Schwab, Fidelity, Invesco,* and *Vanguard* have recognized a natural added value of robo-advisory as a product distribution channel and have either launched in-house robo-advisory solutions or acquired existing providers. To date this business form has proven to be the most successful in the US, whereby *Vanguard* and *Charles Schwab* are currently the global leaders in the robo-advisory market.

The question that naturally arises given the success of asset management product providers in the US robo-advisory market is why similar solutions are not offered in Europe yet. One of the reasons could be that in general the European market, and the Swiss market in particular, is more heterogeneous than the US market in terms of culture, language, and regulatory framework, which would require these providers to create a tailored solution for each individual market.

In 2017 *BlackRock* acquired a minority equity stake in the Anglo-German *Scalable Capital.* According to different media sources, *BlackRock's* primary goal was to gain access to innovative technologies. However, in the current regulatory framework, access to new technologies and product distribution are linked. New reg-

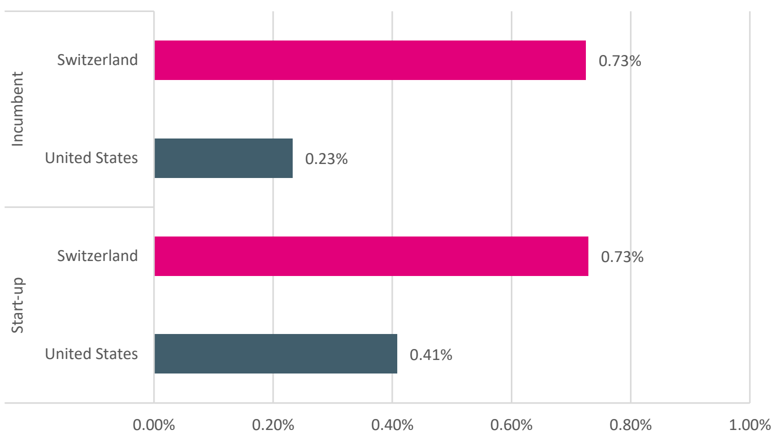

Figure 4.3: Comparison of all-in fees of Swiss and US robo-advisors based on management style (passive vs. active) and corporate origin (start-up vs. incumbent)

ulation aimed at improving transparency and investor protection make innovation inevitable for asset managers to help design, manage, and distribute investment products.

In Switzerland, robo-advisors have recently started collaborating with established banks. In 2017, BLKB launched Digifolio, a robo-advisory solution based on the technology provided by *TrueWealth*. In 2019, *Bank BSU* established investclick.ch in a cooperation with *Descartes Finance*. Such partnerships are favorable for robo-advisors as they offer access to potential clients. At the same time, banks benefit from additional digital services that help them attract new assets. Nevertheless, so far the volumes resulting from these partnerships in Switzerland remain low. Likewise, stand-alone and incumbent robo-advisors have also not yet managed to succeed in attracting a significant amount of clients' money.

What can Swiss robo-advisors learn from the success of the solutions offered by *Vanguard* and *Charles Schwab?* First, these companies benefit from the brand awareness and existing customer base and thereby produce an efficient and scalable robo-advisory business model. Second, these economies of scale allow *Vanguard* and *Schwab* to offer their clients extremely attractive prices.

In general, robo-advisors can choose between three strategies: grow slowly and balance unprofitability with new funding, grow fast by investing in advertising or work with established companies through distribution partnerships, mergers or integrated business models (Morningstar, 2018). While the first choice is rather risky in a small market like Switzerland and the second alternative is expensive, the third option could be the most realistic for Swiss robo-advisors. In particular, partnerships with incumbent asset managers could allow robo-advisors to develop economies of scale and brand awareness. At the same time, asset managers themselves would gain access to new technologies and expand their distribution channels.

5. Conclusion & Outlook

The IFZ/AMP Asset Management Study aims to give an annual overview of the state and the developments of Swiss asset management. Based on the findings presented in the previous chapters, we conclude with the following four statements/hypothesis:

Switzerland is a strong asset management hub and asset management matters for the economy
Switzerland offers favorable conditions for asset management companies to thrive. In particular, a stable and reliable political/legal environment and a strong education system with a highly skilled labor force are identified as key success factors. In terms of the market size, the total volume of assets managed by banks, fund management companies, securities dealers, and *FINMA*-supervised asset managers in Switzerland at the end of 2018 amounted to CHF 2'161 billion, which is approximately three times the size of the Swiss GDP and about twice the amount of assets held in Swiss pension schemes. Our estimates further indicate that about 9'900 jobs (3 % year-on-year growth) are directly related to the asset management industry in Switzerland, while about 45'600 people are indirectly employed by the industry in the wider scope.

Regulation is the most pressing challenge while specialization and sustainable investments are seen as opportunities for the Swiss asset management industry
In a sentiment analysis among Swiss-based asset managers, regulation was perceived as the most pressing challenge. In this context, about 70 percent of the respondents think that the balance between regulatory costs and regulatory benefits is unbalanced and a majority of the surveyed asset management firms consider regulatory costs to be high. Asset managers in Switzerland see potential regulatory improvements in the abolishment of the stamp duty and in a reduction of the withholding tax. In order to have a competitive advantage in the asset management industry it is important to choose a business model where the focus is set either on cost leadership (passive investments) or product specialization. Our analysis shows that Swiss-based asset managers see the largest opportunities in product specialization and sustainable investments and the least opportunities in passive investments. From a strategic perspective, this implies that Swiss asset management firms position themselves as specialists with clearly defined core competencies.

Active management dominates the asset allocation of Swiss-based asset management firms
About 70 percent of the assets managed in Switzerland are actively managed and 30 percent are passively managed. Among discretionary mandates, about two thirds of the assets are actively managed while for collective investment schemes about 80 percent of the assets under management are managed using an active approach. These numbers corroborate the finding from the sentiment analysis, that Swiss-based asset managers focus on specialized, actively managed products in order to establish a competitive advantage. Moreover, asset managers in Switzerland have a strong exposure to alternative asset classes, which very often follow active portfolio management strategies.

Regulatory compliance with international standards is a fundamental requirement to be able to export Swiss asset management abroad
Global markets offer great potential for Swiss asset management as significant growth is forecast for assets abroad. Swiss-based asset managers must be able to provide their products and services competitively out of Switzerland to other countries. In this context, 90 percent of the surveyed Swiss-based asset management firms evaluate the compliance of Swiss regulation with international regulatory standards as either important or very important for the exportability of Swiss asset management services and products.

6. Factsheets of Asset Management Companies in Switzerland

The last chapter of this study contains the factsheets of all the asset management companies in Switzerland that participated in our survey. The factsheets are based on the Business Model Canvas of Osterwalder and Pigneur (2010), described in section 1.3. As mentioned earlier, they were created based on publicly available sources such as the companies' websites, newspaper articles, and academic studies. For the purposes of verification, correction and completion, these draft versions were then passed on to the respective asset managers. Note that the companies which did not return the factsheet are not presented in the following pages. Moreover, it is important to note that some participants were not able to provide specific information about their asset management unit. However, in order to provide a comprehensive overview of asset management companies in Switzerland we included these factsheets in the study as well but report numbers on a group level. The factsheets of these companies are marked explicitly. Moreover it is important to note that if an asset manager serves both Swiss and international customers, Swiss customers are included in the international customer segment. For example, if an asset management firm indicates to serve institutional international clients in the factsheet, it follows that the respective asset manager serves Swiss institutional clients as well. At this point, we would like to thank all companies that took part in our survey and supported the initiative to portray the Swiss asset management industry in a comprehensive way.

Companies

3V Asset Management AG **www.3vam.ch**

Founded in 1997 *Headquarter* Zurich

We invest with a long-term perspective and are interested in a sustainable development of our companies. Also, we seek to achieve Corporate Governance and respect our shareholders rights.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	2	
	… of which in CH	2	
	AuM 2018 (m)	CHF 86	
	... of which managed in CH (m)	CHF 86	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

AG für Fondsverwaltung **www.immofonds.ch**

Founded in 1955 *Headquarter* Zürich

AG für Fondsverwaltung is a fund management company according to Swiss law. The company is managing the IMMOFONDS which is a leading real estate fund according to Swiss collective investment scheme.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	5	
	… of which in CH	5	
	AuM 2018 (m)	CHF 1’600	
	... of which managed in CH (m)	CHF 1’600	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

AgaNola Specialised Asset Manager

AgaNola AG **www.aganola.com**

Founded in 2007 *Headquarter* Pfäffikon SZ

By the means of continuous performance, transparency and proximity to our institutional and private clients we were able to secure their trust and thereby gradually expand our client network and assets under management to over one billion CHF.

Key & Cooperation Partners	Key Resources	
Credit Suisse Asset Management	Employees in 2018	8
	… of which in CH	8
	AuM 2018 (m)	CHF 1'300
	... of which managed in CH (m)	CHF 1'300

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Albin Kistler

Albin Kistler AG **www.albinkistler.ch**

Founded in 1995 *Headquarter* Zürich

Our investment success is based on timeless principles and disciplined and independent financial analysis performed by approximately 20 analysts in the field of equities, issuers, interest rates and currencies.

Key & Cooperation Partners	Key Resources	
As of December 31st 2017, Graubündner Kantonalbank owns 25 % of Albin Kistler AG. However, with regards to the selection of custodian our clients may choose amongst 5 different custodians (custody banking solutions).	Employees in 2018	33
	… of which in CH	33
	AuM 2018 (m)	>CHF 4'800
	... of which managed in CH (m)	>CHF 4'800

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

AMG Fonds

AMG Fondsverwaltung AG **www.amg.ch**

Founded in 2011 *Headquarter* Zug

We invest our investors' money professionally, sincerely and responsibly.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	9
	… of which in CH	9
	AuM 2018 (m)	CHF 726
	... of which managed in CH (m)	CHF 726

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

ARTICO Partners

Artico Partners AG **www.artico-partners.com**

Founded in 2004 *Headquarter* Zürich

We are an asset management company specialized in fundamental bottom-up stock selection. Our main focus is to identify and to invest in good companies globally. Companies we invest in have a simultaneous high score in terms of GROWTH, PROFITABILITY, FINANCIAL HEALTH and VALUATION. This combination is unique and explains the excellent track record.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	6
	… of which in CH	6
	AuM 2018 (m)	CHF 400
	... of which managed in CH (m)	CHF 400

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Atlanticomnium SA **www.atlanticomnium.ch**

Founded in 1976 *Headquarter* Geneva

We exploit credit opportunities across sectors and market cycles, aiming to capture investing in strong companies using specialist skills to exploit opportunities across the full range of the capital structure.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	25
	… of which in CH	23
	AuM 2018 (m)	CHF 10'000
	... of which managed in CH (m)	CHF 10'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

AXA Investment Managers Schweiz AG **www.axa-im.ch**

Founded in 2006/1996 *Headquarter* Zürich (Local Headquarter) / Paris (Group Headquarter)

AXA Investment Managers works with its clients today to provide the solutions they need to help secure a better tomorrow for their investments, while creating a positive change for the world in which we all live.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	2'350
	… of which in CH	78
	AuM 2018 (m)	CHF 822'637
	... of which managed in CH (m)	CHF 46'963

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Ayaltis AG **www.ayaltis.com**

Founded in 2008 *Headquarter* Zürich

Ayaltis is a specialized fund of hedge funds manager with a focus on relative value strategies. Ayaltis was founded in the midst of the financial crisis in October 2008 by the two current partners. Both have long standing experience in the hedge fund industry prior to the launch of their own company and have been working together for more than 15 years. Ayaltis is independent and owned by the management, employees and strategic partners (family offices). This ensures the closest possible alignment of clients' and the firm's interests, supported by a robust risk management and operational infrastructure.

Key & Cooperation Partners	Key Resources	
Son Nguyen (CEO & Managing Partner), Ernesto Prado (CIO & Managing Partner), Andrea Luzzi (CRO)	Employees in 2018	14
	… of which in CH	12
	AuM 2018 (m)	USD 600
	... of which managed in CH (m)	USD 600

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

AZ Swiss & Partners SA **www.azimut-group.com**

Founded in 2012 *Headquarter* Lugano

AZ Swiss & Partners was founded in October 2012 and in January 2016 obtained authorisation from the Swiss Federal Financial Market Supervisory Authority (FINMA) as asset manager of collective investment schemes (CISA). The main activities carried out by the company are (i) asset management of collective investment schemes (UCITS and AIF under Luxembourg law), (ii) asset management of individual portfolios and individual investment advice for private and institutional clients, (iii) the distribution of collective capital investment to qualified investors.

Key & Cooperation Partners	Key Resources	
As of January 2018, AZ Swiss & Partners owns 100 % of SDB Financial Solutions SA.	Employees in 2018	33
	… of which in CH	33
	AuM 2018 (m)	CHF 2'200
	... of which managed in CH (m)	CHF 2'200

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

B&I CAPITAL AG

B&I Capital AG **www.bnicapital.com**

Founded in 2007 *Headquarter* Zürich

B&I Capital's primary goal is to give investors a means to replicate the risk-adjusted returns of multi-class Commercial Real Estate ownership, predominantly via the REIT market.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	14
	… of which in CH	9
	AuM 2018 (m)	USD 725
	... of which managed in CH (m)	USD 363

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Baloise Asset Management

Baloise Asset Management Schweiz AG **www.baloise-asset-management.com**

Founded in 2001 *Headquarter* Basel

Baloise Insurance has been successfully managing its insurance assets for more than 150 years. Nowadays, its investment expertise is grouped under Baloise Asset Management, which looks after both the Baloise Group's own assets and the investments of its clients. As one of Switzerland's 20 biggest asset managers, we know how to seize opportunities in today's complex market and offer tailored investment solutions with attractive performance prospects to meet our clients' needs.

Key & Cooperation Partners	Key Resources	
Baloise Fund Invest, Perspectiva Sammelstiftung, Trigona Sammelstiftung, Bâloise-Anlagestiftung, Baloise Bank SoBa, Basler Versicherungen	Employees in 2018	146
	… of which in CH	146
	AuM 2018 (m)	CHF 55'941
	... of which managed in CH (m)	CHF 55'941

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Banque Cantonale Vaudoise **www.bcv.ch**

Founded in 1845 *Headquarter* Lausanne

Fifth-largest universal bank in Switzerland by total assets and the largest bank in Vaud, BCV offers comprehensive range of banking services through four customer-oriented divisions: Retail Banking, Private Banking, Corporate Banking, and Asset Management & Trading. Our mission is to contribute to the development of all sectors of the Vaud economy.

Key & Cooperation Partners	Key Resources*	
	Employees in 2018	1'896
	… of which in CH	1'896
	AuM 2018 (m)	CHF 87'600
	... of which managed in CH (m)	CHF 87'600

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Bantleon Bank AG **www.bantleon.ch**

Founded in 1994 *Headquarter* Zug

Based in Switzerland and Germany, BANTLEON specialises in institutional investments with a focus on capital preservation. The team behind this process comprises some of the world's best macroeconomic analysts, leading scientists from the technology sector and experienced securities analysts.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	49
	… of which in CH	26
	AuM 2018 (m)	CHF 6'500
	... of which managed in CH (m)	CHF 6'500

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

* Numbers reported on a group level and no detailed information on asset management unit provided.

BELLECAPITAL

Bellecapital Partners AG **www.bellecapital.com**

Founded in 1995 *Headquarter* Zürich

We provide fund solutions to mainly institutional investors. We are direct investors and operate free of benchmarks to optimize risk management and a long term investment approach.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	9
	… of which in CH	9
	AuM 2018 (m)	CHF 70
	... of which managed in CH (m)	CHF 70

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

BB Bellevue

Bellevue Asset Management AG **www.bellevue.ch**

Founded in 1993 *Headquarter* Küsnacht

Bellevue Asset Management is an independent and highly specialized asset management boutique focused on managing healthcare equity strategies as well as specialized equity and multi asset strategies. One of our core areas of specialty that already dates back more than 25 years is the global healthcare sector, for which we offer a diverse spectrum of top tier investment solutions. Our Swiss and European equity strategies focus on family and owner-managed companies a field in which Bellevue is a pioneer. With BB Global Macro we also offer a multi-asset fund focused on absolute returns.

Key & Cooperation Partners	Key Resources	
RBC Investor Services, MDO Management Company SA, PMG Fondsmanagement AG, Swisscanto Fondsleitung, Acolin Fund Services, Erste Bank, Julius Bär, Krebsliga Schweiz	Employees in 2018	51
	… of which in CH	40
	AuM 2018 (m)	CHF 6’900
	... of which managed in CH (m)	CHF 6’900

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

BlackRock Asset Management AG **www.blackrock.com**

Founded in 1988 *Headquarter* New York

Our mission is to combine the global investment expertise of BlackRock for investors in Switzerland.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	Approximately 14'900	
	… of which in CH	113	
	AuM 2018 (m)	USD 5'975'818	
	... of which managed in CH (m)	Not disclosed	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

Blackwall Capital Investment AG **www.blackwallcapital.com**

Founded in 2014 *Headquarter* Zug

The firm follows a fundamental, value-based long/short equity strategy. Blackwall Capital acts with the goal to achieve superior absolute returns, with a moderate level of volatility and low correlation to equity markets.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	5	
	… of which in CH	5	
	AuM 2018 (m)	CHF 225	
	... of which managed in CH (m)	CHF 225	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

BWM AG **www.bwm.ch**

Founded in 1997 *Headquarter* Wilen bei Wollerau

The three owners, Thomas Braun, Erich Müller and Georg von Wyss, launched the company at the end of 1997 in order to manage money independently and without compromise using the value style. Since then they have put together a team of experts in value investing.

Key & Cooperation Partners	Key Resources	
Thomas Braun, Georg von Wyss, Erich Müller	Employees in 2018	9
	… of which in CH	9
	AuM 2018 (m)	CHF 867
	... of which managed in CH (m)	CHF 867

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

BZ Bank Aktiengesellschaft **www.bzbank.ch**

Founded in 1985 *Headquarter* Wilen

BZ Bank - an Investment Boutique. The basis for our client relationships is trust. BZ Bank sets very high standards in quality and values, and prescribes the highest ethical standards to itself and its employees.

Key & Cooperation Partners	Key Resources*	
	Employees in 2018	14
	… of which in CH	14
	AuM 2018 (m)	CHF 13’100
	... of which managed in CH (m)	CHF 13’100

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

* Numbers reported on a group level and no detailed information on asset management unit provided.

CAPITAL GROUP®

Capital International Sàrl **www.capitalgroup.com**

Founded in 1963 *Headquarter* Geneva

Since 1931, Capital Group has been singularly focused on delivering superior, consistent results for long-term investors using high-conviction portfolios, rigorous research and individual accountability. Our Swiss company, Capital International Sàrl, was founded in 1963 and is active in investment research, investment management and distribution.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	7'250
	… of which in CH	140
	AuM 2018 (m)	CHF 1'650'000
	... of which managed in CH (m)	CHF 7'700

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

CARNOT CAPITAL

Carnot Capital AG **www.carnotcapital.com**

Founded in 2007 *Headquarter* Zürich

Carnot Efficient Energy invests in sustainable companies with energy and resource efficient products and technologies. The investment strategy is a fundamental value approach. The most important investment criteria are a successful business model, valuation of the company, a solid balance sheet, the operational cash flow and the quality of management. The fund invests in shares quoted on the stock exchange, as well as other securities comparable to shares.

Key & Cooperation Partners	Key Resources	
Blue Orchard, AIL Structured Finance	Employees in 2018	6
	… of which in CH	6
	AuM 2018 (m)	CHF 80
	... of which managed in CH (m)	CHF 80

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Controlfida (Suisse) SA **www.controlfida.com**

Founded in 1989 *Headquarter* Lugano

Superior risk-adjusted returns for investors.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	16
	… of which in CH	16
	AuM 2018 (m)	Not disclosed
	... of which managed in CH (m)	Not disclosed

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Credit Suisse Asset Management (Schweiz) AG **www.credit-suisse.com**

Founded in 2017 *Headquarter* Zürich

Our Swiss Asset Management business is an important hub for our global Asset Management with total AuM of CHF 389 bn globally as of end 2018. It is managed to a large extent out of Switzerland and provides its Swiss and international clients abroad offering across various assets and product classes. This bundling of experience and expertise enables us to offer a high degree of product specialization – in alternative as well as traditional investment classes. Our asset management business is a leader in the Swiss market, offering equity, fixed income, real estate, insurance-linked, infrastructure, index and multi-asset class solutions. Our real estate and insurance-linked businesses are the clear market leader in Switzerland and notably one of the largest fund managers in Europe in the respective markets.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	1’160
	… of which in CH	Not disclosed
	AuM 2018 (m)	CHF 389’000
	... of which managed in CH (m)	Not disclosed

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

DWS CH AG **www.dws.ch**

Founded in 2002 *Headquarter* Zürich

DWS CH AG operates as an investment management company. The Company offers asset management, portfolio construction, funds, equities, investment strategies, financial planning and advisory services.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	3’470
	… of which in CH	50
	AuM 2018 (m)	EUR 704’000
	... of which managed in CH (m)	CHF 33’916

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

EFG Asset Management (Switzerland) SA **www.efgam.com**

Founded in 2009 *Headquarter* Geneva

EFGAM SW is an investment management firm providing discretionary portfolio management services to private and institutional clients and managing a range of investment funds.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	52
	… of which in CH	52
	AuM 2018 (m)	CHF 7’200
	... of which managed in CH (m)	CHF 7’200

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Fisch Asset Management AG **www.fam.ch**

Founded in 1994 *Headquarter* Zürich

Fisch Asset Management is an asset manager specialising in select investment strategies. It offers onvertible bonds, corporate bonds and absolute return solutions. The company is owned by our employees and characterised by a corporate culture of respect, transparency and entrepreneurship.

Key & Cooperation Partners	Key Resources	
Independent Credit View: credit research partner since 2003, a Fisch Asset Management owns a controlling stake	Employees in 2018	87
	… of which in CH	87
	AuM 2018 (m)	CHF 10'449
	... of which managed in CH (m)	CHF 10'449

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Fontavis AG **www.fontavis.ch**

Founded in 2011 *Headquarter* Baar

FONTAVIS is a European fund manager that delivers sustainable returns from investments in core and added value clean energy and infrastructure assets. We raise long-term capital to invest in assets and projects that produce renewable energy, improve energy efficiency or provide energy infrastructure. Companies are provided with capital, expertise and committment to steer the businesses to new levels of excellence.

Key & Cooperation Partners	Key Resources	
Die Mobiliar, UBS	Employees in 2018	13
	… of which in CH	13
	AuM 2018 (m)	CHF 800
	... of which managed in CH (m)	CHF 700

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

FUNDANA SA www.fundana.ch

Founded in 1993 *Headquarter* Geneva

Fundana is one of the first independent Swiss institutions fully dedicated to alternative investments.

Key & Cooperation Partners	Key Resources	
SFAMA, AIMA, GSCGI	Employees in 2018	15
	… of which in CH	15
	AuM 2018 (m)	CHF 848
	... of which managed in CH (m)	CHF 848

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

GAM Capital Management (Switzerland) AG www.gam.com

Founded in 1995 *Headquarter* Zürich

Our job is to help clients achieve their investment goals by putting their capital to work. We share insights, act with integrity and execute with purpose to make the right investment decisions for our clients.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	925
	… of which in CH	269
	AuM 2018 (m)	CHF 132'200 of which CHF 56'100 in Investment Management and CHF 76'100 in Private Labelling
	... of which managed in CH (m)	CHF 14'905 in Investment Management

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Hérens Quality Asset Management AG **www.hqam.ch**

Founded in 2003

Headquarter Pfäffikon SZ

We are one of the pioneers in systematic Quality investments worldwide. Over the years we have built up our own Research team with the aim to find the best Quality companies in the world – from both fundamental and valuation perspectives. We have proved that systematic Quality is a unique investment style with its own performance and risk character.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	Not disclosed
	… of which in CH	Not disclosed
	AuM 2018 (m)	CHF 900
	... of which managed in CH (m)	CHF 900

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

IFR Institute for Financial Research AG **www.ifr-assetmanagement.com**

Founded in 2005

Headquarter St. Gallen

IFR is an investment boutique for tactical wealth allocation.

Key & Cooperation Partners	Key Resources	
Fund management companies / custodian banks	Employees in 2018	5
	… of which in CH	5
	AuM 2018 (m)	CHF 325
	... of which managed in CH (m)	CHF 300

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Inoks Capital SA **www.inokscapital.ch**

Founded in 2004 *Headquarter* Geneva

We are an independent, alternative asset manager, authorized by FINMA and headquartered in Geneva (Switzerland). Our multi-disciplinary team is driven by the challenge of chanelling capital towards small and medium sized businesses in the emerging markets' commodities universe.

Key & Cooperation Partners	Key Resources	
Quadia, SIFEM, responsibility, Sidra Capital	Employees in 2018	27
	… of which in CH	22
	AuM 2018 (m)	USD 500
	... of which managed in CH (m)	USD 500

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

JMS Invest AG **www.jmsinvest.ch**

Founded in 2007 *Headquarter* Zürich

JMS Invest is an established Investment Manager, where hard-work, experience and rigorous discipline serve just one goal: generating outstanding risk-adjusted returns for its investors.

Key & Cooperation Partners	Key Resources	
Deloitte, e-tops	Employees in 2018	3
	… of which in CH	3
	AuM 2018 (m)	CHF 121
	... of which managed in CH (m)	CHF 121

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Konwave AG

Konwave AG **www.konwave.ch**

Founded in 2003 *Headquarter* Herisau

For our clients, we are a reliable, long-term oriented and successful partner.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	8	
	… of which in CH	7	
	AuM 2018 (m)	CHF 400	
	... of which managed in CH (m)	CHF 400	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

LGT Capital Partners your partner for alternative investments

LGT Capital Partners AG **www.lgtcp.com**

Founded in 2000 *Headquarter* Pfäffikon SZ

LGT Capital Partners is a leading global specialist in alternative investing. As a principal investor in our own strategies, we are well aligned with our clients. Partnering with investors in long-term relationships is the key measure of success for us.

Key & Cooperation Partners	Key Resources		
LGT Bank as well as other LGT Capital Partners entities outside of Switzerland	Employees in 2018	406	
	… of which in CH	279	
	AuM 2018 (m)	CHF 58'700	
	... of which managed in CH (m)	CHF 33'100	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

Lombard Odier Asset Management (Switzerland) SA **www.loim.com**

Founded in 1972 *Headquarter* Lancy

Lombard Odier Investment Managers is the asset management business of the Lombard Odier Group, which has been wholly owned and funded by its partners since its establishment in 1796. We provide a range of investment solutions to a group of clients that are all long-term oriented in their many and diverse ways. Our investment capabilities span Fixed Income, Convertible Bonds, Equities, Multi-Asset, Alternatives and Responsible Investing.

Key & Cooperation Partners	Key Resources		
Banque Lombard Odier & Cie SA	Employees in 2018	355	
	… of which in CH	139	
	AuM 2018 (m)	CHF 43'616	
	... of which managed in CH (m)	CHF 27'619	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

Luzerner Kantonalbank **www.lukb.ch**

Founded in 1850 *Headquarter* Luzern

The company culture is based on the company concept, the leadership comprehension and principle of sustainability.

Key & Cooperation Partners	Key Resources*		
	Employees in 2018	1'000	
	… of which in CH	1'000	
	AuM 2018 (m)	CHF 28'159	
	... of which managed in CH (m)	CHF 28'159	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

* Numbers reported on a group level and no detailed information on asset management unit provided.

Man Investments (CH) AG **www.man.com**

Founded in 1994 *Headquarter* Pfäffikon SZ

Man Group is a global investment management firm, focused on generating outperformance for clients. This is achieved through a diverse spectrum of specialist active investment disciplines, empowered by the latest techonlogy.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	Not disclosed
	… of which in CH	Not disclosed
	AuM 2018 (m)	Not disclosed
	... of which managed in CH (m)	Not disclosed

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Mensarius AG **www.mensarius.com**

Founded in 2007 *Headquarter* Zollikon

Our mission is to challenge the conventional world of finance with our sense of fiduciary duty. We are value investors and focus primarily on European domiciled companies. We aim for our strategy is to build long-term wealth for our investors by doubling the capital over a market cycle. Our philosophy centres on investing as owners of the business. Long-term investment returns are generated by investing in attractive business models at discounted prices on an investment by investment basis.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	12
	… of which in CH	12
	AuM 2018 (m)	CHF 986
	... of which managed in CH (m)	CHF 986

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

MIRANTE FUND MANAGEMENT

MFM Mirante Fund Management SA **www.mirante.ch**

Founded in 2003 *Headquarter* Lausanne

Our goal is to develop and maintain long-term relationships based on cooperation and transparency.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	22
	… of which in CH	22
	AuM 2018 (m)	CHF 1’000
	… of which managed in CH (m)	CHF 1’000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

MIRABAUD 1819 Asset Management

Mirabaud Asset Management (Suisse) SA **www.mirabaud.com**

Founded in 2014 *Headquarter* Geneva

Mirabaud offers ist Swiss and international clientele a range of bespoke financial and advisory services in three core areas of activity: wealth management, asset management and brokerage.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	100
	… of which in CH	52
	AuM 2018 (m)	CHF 6’600
	… of which managed in CH (m)	CHF 2’400

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

OLZ AG **www.olz.ch**

Founded in 2001 *Headquarter* Bern

OLZ is an independent asset manager systematic portfolio optimization with a risk-based approach. Since 2017, OLZ considers sustainability criteria (ESG) in the investment process of all funds. OLZ's methodology is available for stocks, bonds and mixed mandates.

Key & Cooperation Partners	Key Resources	
Member of Swiss Sustainable Finance (SSF), Founding Member of Alliance of Swiss Wealth Managers (ASWM)	Employees in 2018	27
	… of which in CH	26
	AuM 2018 (m)	CHF 3'000
	... of which managed in CH (m)	CHF 3'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Partners Group AG **www.partnersgroup.com**

Founded in 1996 *Headquarter* Zug

Partners Group is a global private markets investment manager, serving over 1'000 institutional investors worldwide. We have USD 83 billion in assets under management and more than 1'200 professionals across 20 offices worldwide. We realize potential in private markets by financing and developing great companies, desirable real estate and essential infrastructure. We create value in our investments through active and long-term responsible ownership.

Key & Cooperation Partners	Key Resources	
Partners Group Holding AG is an independent company and is not affiliated with any other corporate group. The firm maintains independence from banks, insurance companies. Partners Group's employees are collectively the biggest shareholder group.	Employees in 2018	1'200
	… of which in CH	400
	AuM 2018 (m)	USD 83'000
	... of which managed in CH (m)	USD 83'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Pictet Asset Management SA www.am.pictet

Founded in 2007 *Headquarter* Geneva

We provide specialist investment services through segregated accounts and investment funds to some of the world's largest pension funds, financial institutions, sovereign wealth funds, intermediaries and their clients.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	985
	… of which in CH	416
	AuM 2018 (m)	CHF 171'000
	... of which managed in CH (m)	CHF 134'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Plenum Investments AG www.plenum.ch

Founded in 2001 *Headquarter* Zürich

Plenum Investments Ltd. Is a Zurich based asset management boutique, solely focused on insurance linked securities.

Key & Cooperation Partners	Key Resources	
None. Plenum Investments AG is fully independent.	Employees in 2018	10
	… of which in CH	10
	AuM 2018 (m)	CHF 422
	... of which managed in CH (m)	Not disclosed

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

QCAM Currency Asset Management AG **www.q-cam.com**

Founded in 2005 *Headquarter* Zug

QCAM Currency Asset Management AG is a financial services provider with main focus on currency and liquidity management. The offering includes Currency Overlay, FX Best Execution, FX Alpha, FX Advisory & Structuring and Liquidity Management. The company is regulated by the FINMA and the SEC, the client base consists of pension funds, family offices, investment funds, asset managers, corporate and NGO's.

Key & Cooperation Partners	Key Resources	
Company is run completely independent of any large service providers. Depending on clients needs, we work with different external partners.	Employees in 2018	18
	… of which in CH	17
	AuM 2018 (m)	CHF 7'187
	... of which managed in CH (m)	CHF 7'187

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Quantica Capital AG **www.quantica-capital.com**

Founded in 2003 *Headquarter* Schaffhausen

Quantica Capital is an asset management company focused on quantitative investment strategies. We provide sophisticated investment management services to our institutional and other qualified investors.

Key & Cooperation Partners	Key Resources	
NFA, CFTC, AIMA, Sbai	Employees in 2018	13
	… of which in CH	13
	AuM 2018 (m)	USD 470
	... of which managed in CH (m)	USD 470

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Reichmuth & Co Investment Management AG **www.reichmuthco.ch**

Founded in 2001 *Headquarter* Luzern

Reichmuth & Co is an owner-managed family business, with integral asset management and an independent investment approach.

Key & Cooperation Partners	Key Resources	
SBV, VSP, Association of Swiss Private Banks, SSIP, SIX, esisuisse	Employees in 2018	106
	… of which in CH	100
	AuM 2018 (m)	CHF 10’000
	... of which managed in CH (m)	CHF 9’000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

RobecoSAM AG **www.robecosam.com**

Founded in 1995 *Headquarter* Zürich

Founded in 1995, RobecoSAM is an investment specialist focused exclusively on Sustainability Investing. To this end, we offer a comprehensive palette of products including in-house asset management, Sustainability Indices, corporate sustainability assessments, active ownership and engagement, and customized portfolio benchmarking solutions. Our asset capabilities accommodate institutional asset owners and financial intermediaries and cover a range of investment products in public equities which integrate environmental, social and governance (ESG) factors into the investment process. All of our investment strategies and products are designed to make a measurable environmental or societal impact.

Key & Cooperation Partners	Key Resources	
Robeco, S&P Dow Jones Indices	Employees in 2018	100
	… of which in CH	100
	AuM 2018 (m)	USD 21’000
	... of which managed in CH (m)	USD 15’000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Schroders

Schroder Investment Management (Switzerland) AG **www.schroders.com**

Founded in 1988 *Headquarter* London

At Schroders, our focus is on pure asset management. That means we can approach investment with a focussed perspective and an entrepreneurial attitude. Our overriding objective is to maximise returns for our clients. Schroders Switzerland, based in Zurich.

Key & Cooperation Partners	**Key Resources**	
As a global player with a local footprint we have various key & cooperation partners around the world.	Employees in 2018	4'800
	… of which in CH	79
	AuM 2018 (m)	CHF 511'300
	… of which managed in CH (m)	CHF 12'530

Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

die Mobiliar

Schweizerische Mobiliar Asset Management AG **www.mobiliar.ch**

Founded in 2012 *Headquarter* Bern

Swiss Mobiliar Asset Management Ltd. is organized as a Fund Management Company and regulated by the FINMA (since 2013). Further the SMAM is responsible for managing the assets of the Swiss Mobiliar Group, the pension institutions of the Swiss Mobiliar, the five strategic funds and the real estate fund for institutional investors only. All funds are managed actively.

Key & Cooperation Partners	**Key Resources**	
Mobiliar Insurance	Employees in 2018	70
	… of which in CH	70
	AuM 2018 (m)	CHF 22'000
	… of which managed in CH (m)	CHF 22'000

Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

SUSI PARTNERS
SUSTAINABLE INVESTMENTS

SUSI Partners AG **www.susi-partners.ch**

Founded in 2009 *Headquarter* Zug

SUSI Partners specialises in financing sustainable infrastructure to advance the energy transition; SUSI Partners' three pillars of investment are clean power generation, energy efficiency enhancements and integrated energy solutions.

Key & Cooperation Partners	Key Resources	
UNPRI, SECA, Swiss Cleantech, DENEFF, ASIP, Hauck & Aufhäuser, WEF Global Shapers, Climate Heroes, Pöyry Switzerland AG	Employees in 2018	58
	… of which in CH	49
	AuM 2018 (m)	EUR 1'000
	... of which managed in CH (m)	EUR 1'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

SFP
Swiss Finance & Property Group

Swiss Finance & Property Funds AG **www.sfp.ch**

Founded in 2001 *Headquarter* Zürich

Swiss Finance & Property AG is a specialised investment and advisory property company with a focus on asset management.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	80
	… of which in CH	80
	AuM 2018 (m)	CHF 5'600
	... of which managed in CH (m)	CHF 5'600

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Swiss Life Asset Management AG **www.swisslife-am.com**

Founded in 1974 *Headquarter* Zürich

We are a well-known, ambitious and reliable European asset manager and a leading institutional real estate asset manager in Switzerland, France, Germany, Luxembourg and the UK.

Key & Cooperation Partners	Key Resources	
Swiss Life Group	Employees in 2018	1'719
	… of which in CH	786
	AuM 2018 (m)	CHF 232'637
	... of which managed in CH (m)	CHF 147'900

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Tavis Capital AG **www.tavis-capital.com**

Founded in 2014 *Headquarter* Zürich

Asset Manager providing investment solutions in the Private Debt Market Switzerland. Currently two active funds under management: a) the Swiss SME Credit Fund I (CHF 137m) for mezzanine financing of Swiss SMEs and b) the Swiss Mortgage Fund I (CHF 664m) for first-ranking mortgages orginated by Credit Suisse.

Key & Cooperation Partners	Key Resources	
Credit Suisse, UBS	Employees in 2018	10
	… of which in CH	10
	AuM 2018 (m)	CHF 800
	... of which managed in CH (m)	CHF 800

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Teleios Capital Partners GmbH **www.teleioscapital.com**

Founded in 2013 *Headquarter* Zug

Teleios Capital is an activist investment firm specialising in European midcap companies with the core objective of creating long-term value for all shareholders. We are an independent investment firm managing assets on behalf of an institutional client base of endowments, foundations and pension plans, as well as family offices.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	11
	… of which in CH	11
	AuM 2018 (m)	USD 1'045
	... of which managed in CH (m)	USD 1'045

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Tolomeo Capital AG **www.tolomeo-capital.com**

Founded in 2011 *Headquarter* Zürich

Tolomeo Capital is a systematic asset manager. It was established in 2011 as a spin-off of the quant and risk management unit of one of Switzerland's largest institutional family offices. The firm focuses on quantitative, technology-driven investment strategies with a strong emphasis on risk-adjusted returns.

Key & Cooperation Partners	Key Resources	
Morgan Stanley Intl., StateStreet, Duff & Phelps Lux, LLBSwiss, PwC Lux , BDO Switzerland.	Employees in 2018	9
	… of which in CH	7
	AuM 2018 (m)	USD 65
	... of which managed in CH (m)	USD 0

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Twelve Capital AG **www.twelvecapital.com**

Founded in 2010 *Headquarter* Zürich

Twelve Capital is an independent investment manager specialising in insurance investments for institutional clients. We are also a leading provider of capital to the insurance and reinsurance industry. Twelve Capital's investment expertise covers the entire insurance balance sheet, including Insurance Bonds, Insurance Private Debt, Catastrophe Bonds, Private Insurance-Linked Securities and Insurance Equity. The firm also runs a number of Best Ideas portfolios as well.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	43
	… of which in CH	30
	AuM 2018 (m)	USD 4'406
	... of which managed in CH (m)	Not disclosed

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

UBS AG **www.ubs.com**

Founded in 1978 *Headquarter* Zürich

UBS provides financial advice and solutions to wealthy, institutional and corporate clients worldwide, as well as private clients in Switzerland. The operational structure of the Group is comprised of our Corporate Center and five business divisions: Wealth Management, Wealth Management Americas, Personal & Corporate Banking, Asset Management and the Investment Bank. UBS's strategy builds on the strengths of all of its businesses and focuses its efforts on areas in which it excels, while seeking to capitalize on the compelling growth prospects in the businesses and regions in which it operates, in order to generate attractive and sustainable returns for its shareholders. All of its businesses are capital-efficient and benefit from a strong competitive position in their targeted markets.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	2'300
	… of which in CH	720
	AuM 2018 (m)	CHF 780'000
	... of which managed in CH (m)	CHF 255'000

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Unigestion SA www.unigestion.com

Founded in 1971 *Headquarter* Geneva

Unigestion is an independent, specialist asset manager providing innovative, tailored solutions for investors worldwide. Since our creation in 1971, we have stayed true to our conviction that intelligent risk-taking is key to delivering consistent returns over time.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	240	
	… of which in CH	150	
	AuM 2018 (m)	USD 22'400	
	... of which managed in CH (m)	Not disclosed	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

Union Bancaire Privée, UBP SA www.ubp.com

Founded in 1969 *Headquarter* Geneva

We strive to (i) create new solutions for our clients as their investment needs evolve and (ii) provide them with best-of-breed strategies differentiated from the traditional asset classes.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	290	
	… of which in CH	106	
	AuM 2018 (m)	CHF 40'344	
	... of which managed in CH (m)	CHF 28'738	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

Veraison Capital AG **www.veraison.ch**

Founded in 2014 *Headquarter* Zürich

Veraison Capital Ltd is an independent asset manager. As such, we are looking for companies that are undervalued and misunderstood by the capital markets, in which we believe we can engage to enhance value and improve shareholder returns.

Key & Cooperation Partners	Key Resources	
KPMG	Employees in 2018	8
	… of which in CH	8
	AuM 2018 (m)	CHF 263
	... of which managed in CH (m)	CHF 263

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Vontobel Asset Management AG **www.vontobel.com**

Founded in 1924 *Headquarter* Zürich

Vontobel Asset Management is an active asset manager with global reach and a multi-boutique approach. Each of our boutiques draws on specialized investment talent, a strong performance culture and robust risk management. Our commitment to active management empowers us to invest on the basis of our convictions. We deliver value through our diverse and highly specialized teams. The goal of achieving excellent and repeatable performance has been fundamental to our approach since 1988. All our investment professionals are invested in the funds they manage to ensure our interests are aligned with our investors.

Key & Cooperation Partners	Key Resources	
	Employees in 2018	430
	… of which in CH	240
	AuM 2018 (m)	CHF 117’357
	... of which managed in CH (m)	CHF 64’361

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

Wydler Asset Management

Wydler Asset Management AG **www.wydlerinvest.ch**

Founded in 2007 *Headquarter* Wilen bei Wollerau

As an asset manager Wydler Asset Management follows ist own path. We focus substantially on equities, are straightforward and have no obligations to any bank. At Wydler Asset Management, the decision makers are also the owners.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	5	
	… of which in CH	5	
	AuM 2018 (m)	CHF 700	
	... of which managed in CH (m)	CHF 700	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

zCapital

zCapital AG **www.zcapital.ch**

Founded in 2008 *Headquarter* Zug

zCapital Ag is an independent asset manager specialised in Swiss equities and managing two investment funds.

Key & Cooperation Partners	Key Resources		
	Employees in 2018	8	
	… of which in CH	8	
	AuM 2018 (m)	CHF 1’400	
	... of which managed in CH (m)	CHF 1’400	
Customer Segments		**Asset Management Services**	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate
Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		
Revenue Model		**Management Style**	
Management Fee	Performance Fee	Active	Passive

100 % Swiss Asset Management.

Swisscanto Invest by Zürcher Kantonalbank

Founded in 1870

www.swisscanto.ch

Headquarter Zürich

Key & Cooperation Partners	Key Resources	
Other Kantonalbanken	Employees in 2018	234
	… of which in CH	234
	AuM 2018 (m)	CHF 153'900
	... of which managed in CH (m)	CHF 153'900

Customer Segments		Asset Management Services	
Private National	Private International	Collective Investment Scheme	Discretionary Mandate
Institutional National	Institutional International	Exchange Traded Fund	Advisory Mandate

Asset Classes			
Money Market	Bond	Equity	Multi Asset
Commodity	Real Estate	Infrastructure	Private Equity
Hedge Funds	ILS		

Revenue Model		Management Style	
Management Fee	Performance Fee	Active	Passive

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Appendix

Indicator sources of the asset management hub ranking

Publisher	Factor	Source	Dimension
2think now	Innovation Cities	Innovation Cities Index 2015	Technological
CFA Institute	CFA Holder by Country	Member Directory	Economic
Credit Suisse	Number of HNWI	Global Wealth Databook 2017	Economic
Economist Intelligence Unit	Global Cities Competitiveness	Hot spots – Benchmarking global city competitiveness	Economic
Edbiz Consulting	Islamic Finance Country Index	Islamic Finance Country Index – IFCI 2017	Economic
Fraser Institute	Economic Freedom of the World	Economic Freedom of the World: 2017 Annual Report	Economic
Hays	Global Skills	Hays Global Skills Index	Social
Heidrick & Struggles	Quality of labor force	Heidrick & Struggles database	Social
Henley & Partners	Visa Restriction	Visa Restrictions Index	Political/Legal
ILO	Unemployment rate	ILO modelled estimates	Social
IMD	World Talent	World Talent Report	Social
University of Sydney, the Economist	Global Peace Index	Global Peace Index	Political/Legal
International Labour Organization	Employment in knowledge-intense services	ILOSTAT Database of Labour Statistics	Social
International Monetary Fund	Domestic Credit to Private Sector	International Financial Statistics and data files and World Bank and OECD GDP estimates	Economic
	Domestic Market Scale	International Monetary Fund Database	Economic
	Foreign Direct Investment Net Inflows	International Financial Statistics and data files and World Bank and OECD GDP estimates	Economic
	Government Debt as % of GDP	World Economic Outlook (April 2018)	Economic
	GDP per capita	World Economic Outlook (April 2018)	Economic
International Telecommunication Union	ICT Access	Measuring the Information Society	Technological
	ICT Use	Measuring the Information Society	Technological
InterNations	Expat Ranking	Expat Insider	Social
Knight Frank	Global Cities	Global Cities Report	Social
KPMG	Corporate Tax Rates	Corporate tax rates table	Political/Legal
Numbeo	Cost of Living City	Numbeo database	Social
	Local Purchasing Power Index	Numbeo database	Economic
	Quality of Life City	Numbeo database	Social
OECD	PISA Ranking	Programme for International Student Assessment (PISA)	Social
QS Quacquarelli Symonds Ltd	QS university ranking average score of top 3 universities	QS World University Ranking	Social

Publisher	Factor	Source	Dimension
Reporters without Borders	Press Freedom Index	World Press Freedom Index	Political/Legal
RobecoSAM	Environmental	Country Sustainability Ranking	Political
	Governance	Country Sustainability Ranking	Political
	Social	Country Sustainability Ranking	Social
Tax Justice Network Limited	Financial Secrecy	Financial Secrecy Index	Economic
The World Bank	Applied Tariff Rates	The Global Entrepreneurship and Development Institute website	Economic
	Ease of Getting Credit	Doing Business: Measuring Regulatory Quality and Efficiency	Economic
	Ease of Paying Taxes	Doing Business: Measuring Regulatory Quality and Efficiency	Political/Legal
	Ease of Protecting Minority Investments	Doing Business: Measuring Regulatory Quality and Efficiency	Economic
	Ease of Resolving Insolvency	Doing Business: Measuring Regulatory Quality and Efficiency	Economic
	Financial Market Sophistication	Market Efficiency	Economic
	Government Effectiveness	World Governance Indicators	Political/Legal
	Graduates in Social Science, Business and Law	Statistics	Social
	Stock Market Capitalization of listed domestic companies (% of GDP)	World Federation of Exchanges database	Economic
	Political Stability	World Governance Indicators	Political/Legal
	Regulatory Quality	World Governance Indicators	Political/Legal
	Starting a Business	Doing Business: Measuring Regulatory Quality and Efficiency	Economic
Transparency International	Corruption Perception	Corruption Perceptions Index	Political/Legal
UBS	Wage Level City	Preise und Löhne	Economic
UNESCO Institute for Statistics	Expenditure on Education	UIS online database	Social
	Graduates in Science & Eng.	UIS online database	Social
	Number of Students from Abroad	UIS online database	Social
	Research Talent in Business Enterprise	UIS online database	Technological
	Researchers	UIS online database	Technological
	Tertiary Enrolment	UIS online database	Social
United Nations Public Administration Network	Government Online Services	e-Government Survey	Technological
	Online E-Participation	e-Government Survey	Technological
World Economic Forum	Quality of Infrastructure	Global Competitiveness Report	Social
	Human Capital	The Human Capital Report	Social
	University/Industry Research Collaboration	Executive Opinion Survey	Technological

Publisher	Factor	Source	Dimension
World Federation of Exchanges	Market Capitalization	World Federation of Exchanges database: extracted from the World Bank's World Development Indicators database	Economic
	Total Value of Stocks Traded	World Federation of Exchanges database: extracted from the World Bank's World Development Indicators database	Economic
Z/Yen Group	Global Financial Centers	Global Financial Centers Index	Economic

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www.hslu.ch/ifz
ISBN 978-3-906877-56-3

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