



SWITZERLAND

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE—MACROFINANCIAL ANALYSIS AND MACROPRUDENTIAL POLICY

June 2019

This Technical Note on Macrofinancial Analysis and Macroprudential Policy for the Switzerland FSAP was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in May 2019.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: <http://www.imf.org>
Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



INTERNATIONAL MONETARY FUND

SWITZERLAND

FINANCIAL SECTOR ASSESSMENT PROGRAM

June 12, 2019

TECHNICAL NOTE

MACROFINANCIAL ANALYSIS AND MACROPRUDENTIAL
POLICY

Prepared By
**Monetary and Capital Markets
Department**

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

CONTENTS

Glossary	4
EXECUTIVE SUMMARY	5
MACROFINANCIAL ANALYSIS	8
INSTITUTIONAL FRAMEWORK FOR MACROPRUDENTIAL POLICY IN SWITZERLAND	12
A. Ability to Act	12
B. Willingness to Act	14
C. Information	17
D. Communication and Reporting	17
E. Assessment and Recommendations	18
MACROPRUDENTIAL TOOLS AND FRAMEWORK FOR SYSTEMIC RISK ANALYSIS	19
A. Macroprudential Tools	19
B. Systemic Risk Analysis	22
C. Financial Stability Aspects of the Pension Fund Sector	25
D. Structure of the Pension Fund Market	29
E. Risks and Vulnerabilities	32
F. Summary and Recommendations	36
BOXES	
1. At-Risk Methodology	10
2. Macroprudential Reform	14
3. Impact of 2012–14 Macroprudential Measures	16
4. Pension Fund Contributions and Benefits	27
FIGURES	
1. Selected Projections	8
2. Real Estate Prices	8
3. Credit and Business Cycle	9
4. Growth-at-Risk Estimates	11
5. Household Wealth	11
6. Housing at Risk	12
7. Pension Savings	25
8. Main Characteristics of the Occupational Pension Fund Sector	28

9. Consolidation Trend in the Pension Fund Sector	30
10. Key Parameters for Pension Liability Valuation	31
11. Asset Allocation in the Pension Fund Sector	33
12. Recovery Measures and Insolvencies	35

TABLES

1. Macroprudential Framework, Recommendations	7
2. Pension Schemes vs. Life Insurance	26

APPENDIX

I. Implementation of 2014 FSAP Recommendations on Macroprudential Policy	37
--	----

Glossary

CAO	Capital Adequacy Ordinance
CCyB	Counter-Cyclical Buffer
D-SIB	Domestic Systemically Important Bank
DStI	Debt-Service-to-Income
DTI	Debt-to-Income ratio
EWI	Early Warning Indicators
FDF	Federal Department of Finance
FinfraG	Finanzmarktinfrastrukturgesetz, FMI law
FINMA	Swiss Financial Market Supervisory Authority
FINMASA	Financial Market Supervision Act
FMI	Financial Market Infrastructure
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
G-SIB	Global Systemically Important Bank
IPRRE	Income-producing residential real estate
IRB	Internal Ratings Based
LTV	Loan-to-Value
LTI	Loan-to-Income
MOU	Memorandum of Understanding
SBA	Swiss Bankers Association
SIBs	Systemically Important Banks
SNB	Swiss National Bank

EXECUTIVE SUMMARY

Macroprudential measures worked well in 2012–14 but there is need for an expanded, mandated, and more accountable macroprudential framework to address inaction bias and rising risks. The framework is constrained by having only one mandated tool along with a self-regulation agreement with banks. A planned introduction of higher risks weights for income-producing residential real estate, and an offer by the bankers association (SBA) to tighten demand side limits are welcome, but further mandated supply- and demand-side tools are needed. The tax deductibility of mortgage interest payments should be abolished. A formal decision-making process for existing, expanded, and new macroprudential tools should specify expectations to act, with a clear assignment of responsibilities by each authority, within their respective mandates, for which they should be publicly accountable.

Financial stability responsibilities and powers are shared across agencies. The Swiss National Bank (SNB) is the lender of last resort, oversees systemic financial market infrastructures (FMIs), and is responsible for systemic risk surveillance. The Financial Market Supervisory Authority (FINMA) is responsible for protecting the functioning of financial markets through supervision of banks, insurers, securities firms, and FMIs. The Federal Ministry of Finance (FDF) prepares and executes the Federal Council's—the federal government's—financial market policies and regulations. There is one dedicated formal macroprudential tool, the sectoral Counter-Cyclical Buffer (CCyB). The Federal Council takes the decision on the CCyB stance based on a proposal by the SNB after consultation of FINMA.

In 2012–14, the authorities took timely macroprudential measures. On the SNB's proposal, the Federal Council introduced and raised the CCyB; additionally, demand-side measures to tackle broad-based risks in the housing market were introduced. The measures targeted mortgage loans financing residential properties, required banks to hold additional CET1 of 1 percent of their associated risk-weighted positions, and a further increase of 1 percent was announced in 2014. FINMA recognized new requirements for mortgage financing drawn up by the SBA as minimum regulatory standards since mid-2012 (including down payment and repayment time). The Federal Council backed these measures by requiring more capital for non-compliant loans, and for the part of mortgages exceeding 80 percent of the property value. FINMA also tightened rules for risk weighing bank mortgages using an internal ratings-based approach.

In a sustained low-interest environment, imbalances in the investment property segment and affordability risks are high and growing. Driven by a search for yield, demand from both private and institutional investors for rental and other properties is high, driving up prices. Leverage in the build-to-let segment is also high; about one-third of bank mortgages is in this segment. In addition, loan affordability risks have risen with about half of new loans issued exhibiting high loan-to-income ratios. While only a small share of the mortgage market, nonbank lending is growing quickly and is exerting further pressures on valuations. Significant structural changes in the mortgage market,

including from tax changes and potential new entrants, have been under discussion, which could further pressure banks' margins and profits, driving greater risk-taking behavior.

The Macprudential framework should be enhanced along several dimensions.

- ***The macroprudential toolkit should be expanded.*** The 2.5 percent ceiling of the sectoral CCyB should be raised and its credit-growth trigger removed or broadened. As a (credit) supply-side instrument, this tool is unsuitable to address risks associated with affordability. On the demand side, self-regulation requires agreement with the banking sector, which may impact timeliness and stringency. Therefore, the Federal Council should expand the toolkit with binding supply- and demand-side instruments such as risk surcharges, loan-to-value (LTV), debt-to-income (DTI), and debt-service-to-income (DStI) limits.
- ***To strengthen operational agility and address inaction bias, a framework with the expectation to act is needed.*** The SNB, under its existing financial stability mandate, would trigger the process to calibrate any current, expanded, or future tools. On a comply-or-explain basis, and after consultation with the FDF, FINMA would be expected to calibrate the tools, possibly within certain predetermined ranges. As future circumstances require, and on a comply-or-explain basis, the SNB and FINMA should propose new macroprudential tools to the FDF. The foregoing would specify expectations—and not only possibilities—for actions by each authority, for which they should be publicly accountable.
- ***Transparency on systemic-risk surveillance and macroprudential policies should be increased.*** A statutory requirement for regular meetings between the FDF, the SNB, and FINMA, with prescribed public communications on systemic risks and macroprudential policies would enhance transparency and support accountability. This approach could build on the existing arrangements for information exchange between said agencies.
- ***Continued closing of data gaps.*** The authorities have reduced data gaps in the mortgage market. However, better data is needed on nonbanks and pension fund investment activities, with more granular information on real estate and mortgage LTV and DTI ratios, and income calculations. Enhanced cooperation among regulators is needed to monitor risks from the pension sector.

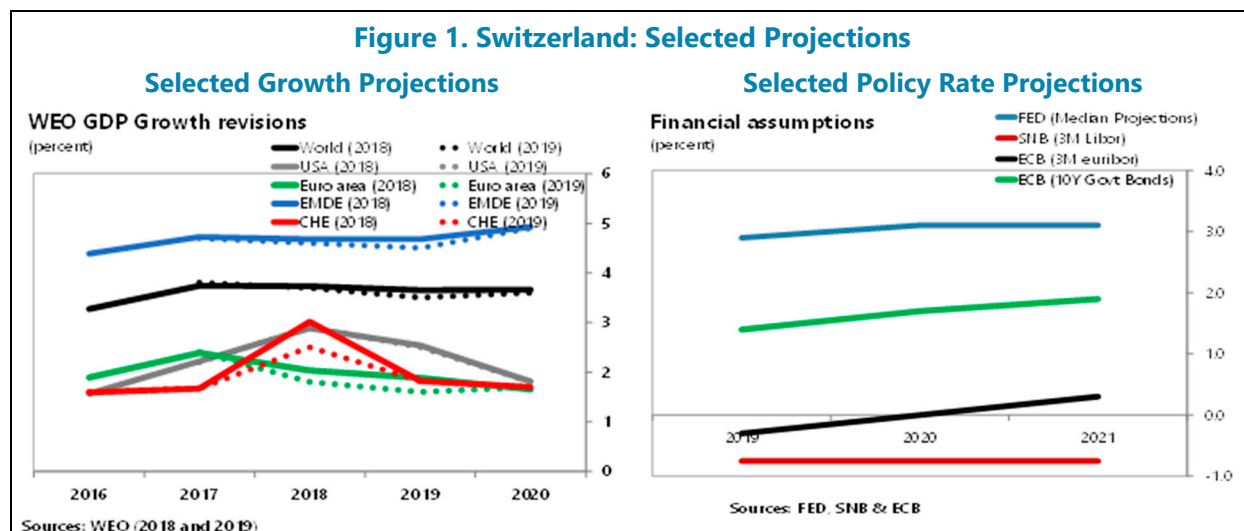
The large and fragmented Swiss pension fund sector faces growing pressures from the persistent low interest rate environment and its impact on systemic risk should be better monitored. The occupational pension fund sector comprises nearly 1,700 heterogeneous entities, managing close to CHF 1 trillion of assets (149 percent of GDP). Persistent low interest rates and higher life expectancy call for adjustment of key technical parameters, but which have been twice rejected by national referendums. Consequently, earning the necessary technical interest rate can be achieved only by greater risk-taking on the asset side, with implications for asset markets, notably real estate. Data gaps significantly compromise market-wide horizontal and systemic risk analyses.

Table 1. Switzerland: Macroprudential Framework, Recommendations

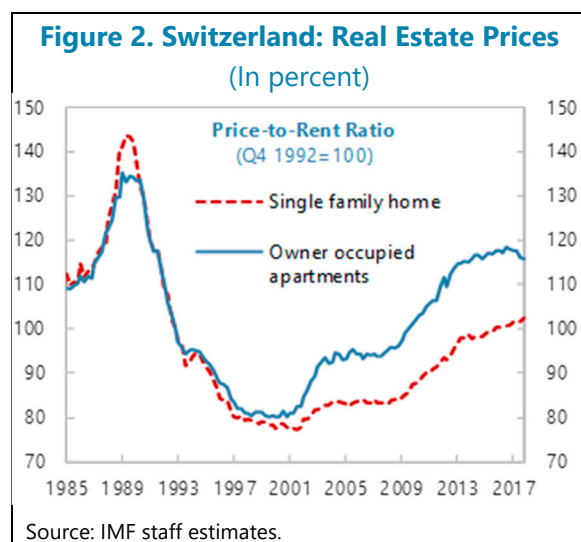
	Recommendations and Responsible Agency	Timing*	Priority**
1.	Expand the macroprudential toolkit with mandated supply- and demand-side tools, including to better address risks associated with affordability (LTV, loan-to-income (LTI), DStI, and amortization requirements). (FDF; ¶30)	ST	H
2.	Introduce a comply-or-explain process involving the SNB, FINMA and the FDF for creating new macroprudential tools and implementing existing tools. (SNB, FINMA and FDF; ¶23-24)	ST	H
3.	Make the sectoral CCyB more flexible, including by raising the 2.5 percent limit of risk-weighted assets and eliminating or broadening its credit-growth trigger. (FDF; ¶31)	ST	H
4.	Remove the tax deductibility of mortgage interest payments for households. (FDF; ¶33)	MT	H
5.	Improve monitoring of the pension sector in systemic risk analysis. (SNB, FINMA, FDF; ¶40, ¶41)	MT	M
6.	Advance the adoption of Basel III regulation on income-producing residential real estate, with higher risk weights. (FDF, FINMA; ¶32)	ST	H
7.	Close data gaps relating to investment property activities, commercial real estate, and more granular LTVs. (FINMA, SNB; ¶40)	ST	H
8.	Enhance communication on financial stability risks through the early warning indicator (EWI) heat maps or similar analytical tools. (SNB) (¶41)	MT	M
9.	Improve the exchange of information on pension fund systemic risks (SNB, FINMA, OAK BV, Federal Council; ¶57)	ST	M
10.	Collect more granular and high-quality data for larger pension funds, based on common reporting standards and enhanced audits (OAK BV, Federal Council; ¶56)	ST	H
11.	Improve transparency of collective pension schemes and include compulsory disclosure of key risk figures, particularly economic funding levels (OAK BV, Federal Council; ¶58)	MT	M
* C = Continuous; I = Immediate (within one year); ST = Short Term (within 1–2 years); MT = Medium Term (within 3–5 years)			
** H = High; M = Medium; L = Low.			

MACROFINANCIAL ANALYSIS¹

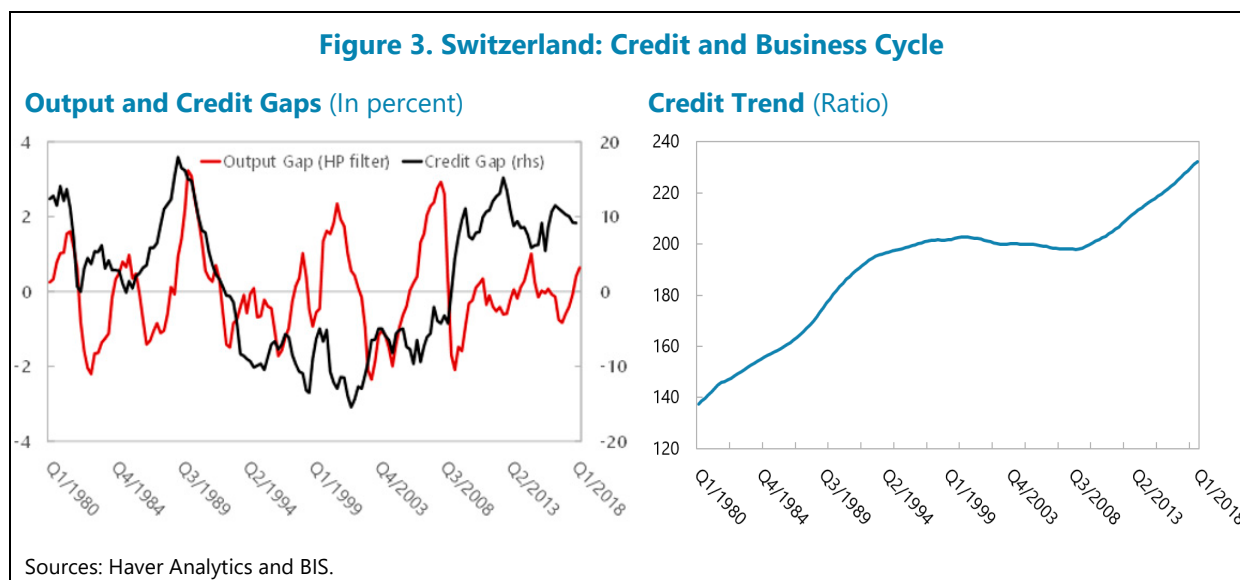
1. Shocks to financial conditions and economic growth in major economies are likely to impact Swiss growth. Global and Swiss growth forecasts were revised downwards in early 2019 and risks to growth are tilted to the downside (Figure 1). Moreover, even though global, U.S., euro area, and Swiss financial conditions have tightened somewhat, they are expected to remain loose in the next few years (Figure 1). A sudden unexpected tightening of financial conditions is likely to put downward pressure on growth in Switzerland.



2. The prolonged period of low interest rates has encouraged risk taking. Negative domestic interest rates have driven the search for yield and the credit gap has been persistently positive since 2009 (Figure 3). Private sector leverage and real estate exposures of banks and households are high and housing affordability has deteriorated. The deterioration in the price-to-income and price-to-rent ratios (Figure 2), the increase in property vacancy rates, and the long duration of the real-estate up-cycle point to rising risks in the real-estate sector. In this environment, adverse shocks to output growth and or financial conditions will pressure real-estate downward.



¹ The Technical Note was prepared by Dan Nyberg with contributions from Apostolos Apostolou (growth and housing at risk) and Timo Broszeit (pensions).



3. The downside risks to output growth and real-estate prices was quantified with a growth-at-risk approach. The FSAP used this methodology (Adrian et al., 2018) to quantify macrofinancial risks for future growth and real-estate prices (Box 1). The methodology uses financial prices and aggregates to identify macrofinancial linkages, gauge financial vulnerabilities, and estimate the severity and likelihood of a slowdown in Switzerland’s GDP growth. The methodology enables discussions on the entire growth distribution at different horizons, helps generate scenarios based on statistical analysis, and allows policymakers to better monitor and deploy policies to mitigate downside risks. The analysis was tailored to Switzerland’s specific risks and vulnerabilities.

Box 1. Switzerland: At-Risk Methodology

The methodology comprises several components to map macrofinancial variables and future growth.¹ The methodology uses the domestic financial conditions index (FCI), domestic financial leverage, Switzerland's trade partner macro variables, and euro area and global financial conditions to gauge the risks to Switzerland's quarterly real GDP growth and real-estate prices. The methodology uses quantile regressions instead of OLS regressions,² to estimate expected quantiles of future GDP and real-estate prices, depending on current financial conditions and output growth.³ Financial conditions improve the ability to predict future economic downturns, demonstrating that as financial conditions tighten, the probability of an economic contraction increases.

For the first time in an FSAP, the growth-at-risk approach was adapted to real estate ('housing-at-risk') to help generate scenarios based on statistical analysis. To quantify macrofinancial risks for real estate prices, apartments price advertisements were used,⁴ and financial prices and other aggregates were utilized to identify financial linkages to real estate and gauge financial vulnerabilities. The methodology estimates the severity and likelihood of decreasing apartment prices in Switzerland in the presence of shocks to output growth and financial conditions. Using quarterly data from 1976: Q3 to 2018: Q3, the sample picks up two 'cycles' in housing prices, which reinforces the confidence in the estimation results. The regression is based on eleven domestic and foreign variables, partitioned using Principal Component Analysis and publicly available data.

The methodology was calibrated to consider Switzerland's specific risks and vulnerabilities regarding output growth and real-estate prices. For the GDP growth-at-risk analysis, quarterly variables were constructed,⁵ using publicly available data,⁶ to calculate the probability of downside risks to growth. For the housing-at-risk analysis quarterly variables were constructed using macrofinancial data to calculate the probability of downside risks to advertised apartment prices.

¹ For a more thorough description of the methodology see Koenker (2005), Adrian et al. (2018), Lafarguette (2018), GFSR (2017).

² The methodology provides estimates only of the expected mean of future GDP conditional on current financial conditions.

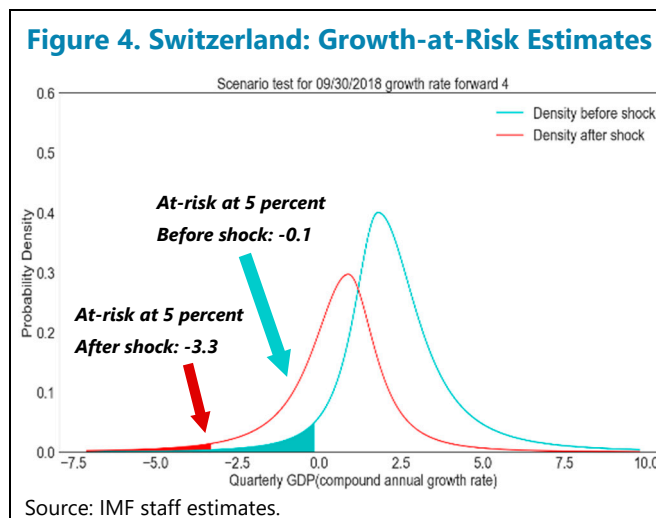
³ The specification is linear for every quantile but the data generating process is non-linear. The predicted values across quantiles to fit a flexible distribution function and the T-skew nests the Normal distribution and allows for skewness and fatter tails.

⁴ Published by the SNB and Wüest Partner

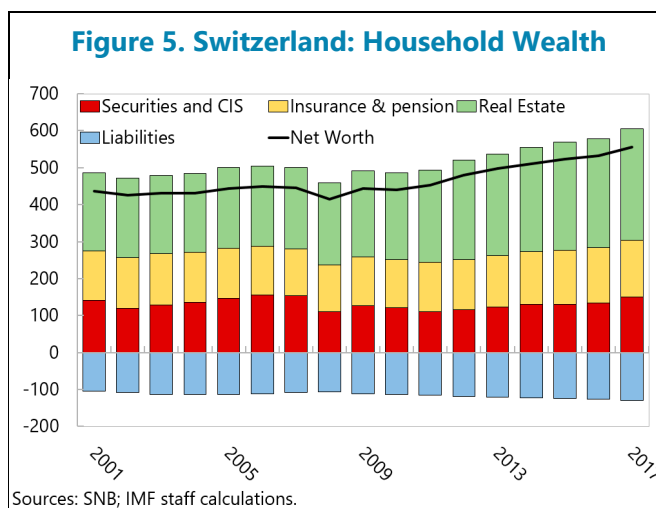
⁵ From 2002: Q1 to 2018: Q3 for twelve domestic and foreign variables and partitioned using Principal Component Analysis

⁶ Sources: Haver; Bloomberg; the Federal Reserve's FRED database; the SNB; and the ECB.

4. The analysis shows that GDP growth is susceptible to macrofinancial shocks. The downside risks to the 2019 GDP growth forecasts appear to be moderate in the absence of financial shocks (Figure 4). However, a one-standard-deviation (s.d.) shock to euro area financial conditions would result in a likely substantial slowdown in GDP growth and a reduction in the confidence of the GDP forecast.



5. Despite the large positive net asset position, the overall exposures to real estate in household wealth is high and may further contribute to macrofinancial risks (Figure 5). Eighty six percent of bank loans are for mortgages (83 percent for global systemically important banks (G-SIBs), and pension funds, insurers, fund managers, and households have substantial direct exposures to domestic real-estate, making them vulnerable to shocks in the sector. Pension funds have shifted their assets toward real estate and now have direct exposures of about 19 percent of assets, of which 89 percent is invested domestically.

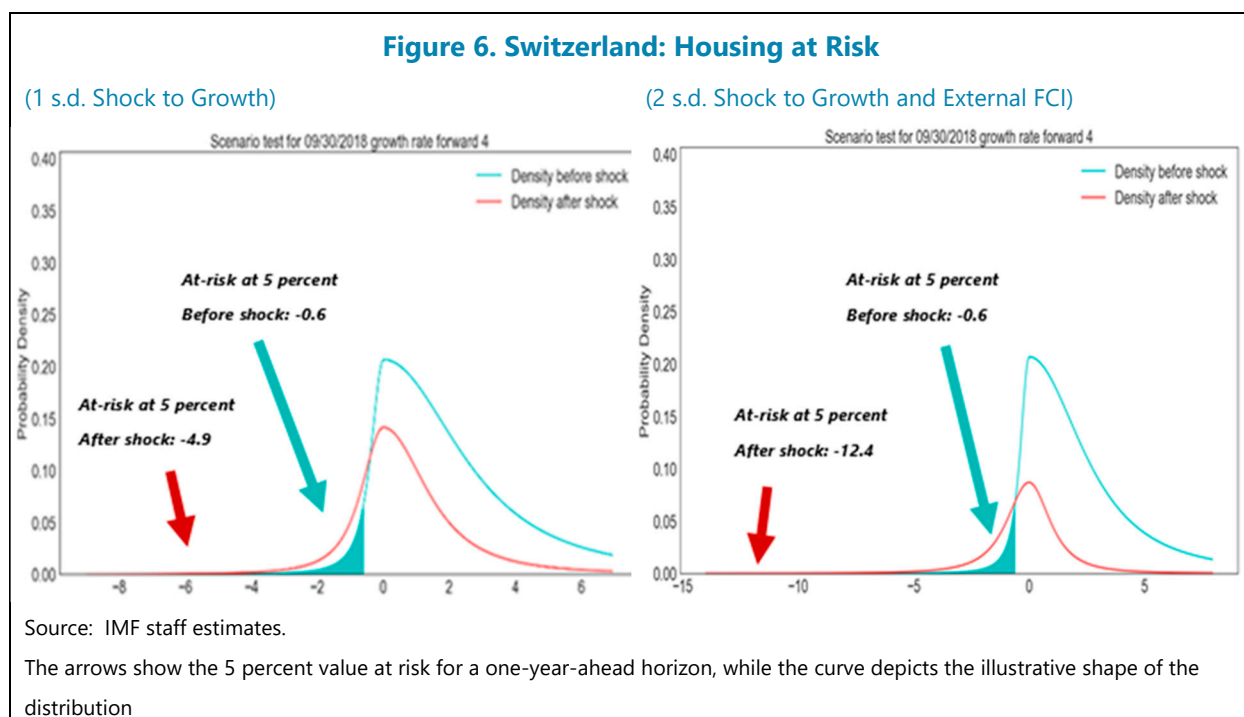


6. The housing-estate-at-risk approach examined the impact of changes in financial conditions on apartment prices. The analysis indicates that downside risks to 2019 real-estate prices one year ahead are limited in the absence of financial or growth shocks. However, shocks to domestic (Figure 6) and/or foreign financial conditions suggest downside risks to real-estate prices. Under a one-standard-deviation shock to domestic financial conditions, the distribution of apartment prices in 2019 shifts to the left and widens.

7. At a one-year horizon, downward risks to real-estate prices rise substantially with larger but plausible macrofinancial shocks.² Figure 6 shows that a two s.d. shock to external financial conditions and to growth has a large impact on risks to real-estate prices. A prolonged period of tighter financial and macro conditions would substantially increase downward risks to real-estate with a likely substantial macroeconomic impact due to large gross exposures of the economy

² The methodology employs a quantile regression estimation using macrofinancial data from 1976: Q3 to 2018: Q3, to calculate the probability of downsides risks to apartment prices.

to real-estate. The analysis suggests that real estate prices are sensitive to domestic and foreign macrofinancial variables.



8. This Technical Note is organized as follows: Section (i) discusses institutional features of the macroprudential framework and Section (ii) covers the systemic risk analysis and macroprudential tools available, as well as financial stability aspects of the pension sector. Appendix I describes implementation of the FSAP macroprudential recommendations from 2014.

INSTITUTIONAL FRAMEWORK FOR MACROPRUDENTIAL POLICY IN SWITZERLAND

9. In this section, the institutional aspects of the macroprudential framework are evaluated according to the following key principles: (i) ability to act through regulatory powers; (ii) willingness to act in the face of potential opposition, thereby countering inaction bias; (iii) information; and (iv) communication and reporting across all agencies.³

A. Ability to Act

10. Financial stability responsibilities and powers are split across agencies. Both the SNB and FINMA are entrusted with macroprudential tasks. The split in responsibilities reflect the strong

³ The assessment draws on the Staff Guidance Note on Macroprudential Policy (IMF, 2014) and its background note (Detailed Guidance on Instruments (IMF, 2014)).

overlap of microprudential and macroprudential oversight. The SNB conducts systemic risk surveillance⁴ and FINMA's responsibility is more generally formulated as protecting the functioning of the financial markets.⁵ The federal government (Federal Council) and the Ministry of Finance (FDF) also have an important role for financial stability policies with significant regulatory powers.

11. There is a clear designation of regulatory powers and responsibilities among agencies.

The FDF and the Federal Council are responsible for legislation, ordinances and decisions on the CCyB. Specifically, ordinances are based on parliamentary laws and are typically issued by the Federal Council. FINMA is responsible for circulars and ordinances where there is explicit delegation in laws. The SNB is responsible for designating systemically important institutions and oversight of systemically relevant FMIs. The SNB proposes activation, increase, or adjustment of the CCyB, after consultation with FINMA, before a final decision by the Federal Council (see Box 2).

12. There are potential overlaps among regulators in financial stability responsibilities.

In general, cooperation between FINMA and SNB is governed by a bilateral Memorandum of Understanding (MOU).⁶ The MOU establishes a strategic Steering Committee, which meets at least twice a year and is co-chaired by the Chairman of the SNB Governing Board and the Chairman of the FINMA Board of Directors, and an operational Standing Committee for Financial Stability, that meets at least four times a year. The MOU states, in particular, that "where there are common areas of interest, cooperation is managed at the strategic level in the Steering Committee and at the operational level in the Standing Committee for Financial Stability". The common areas of interest between SNB and FINMA are: (i) assessment of the soundness of systemically important banks (SIBs) and/or the banking system; (ii) regulations that have a major impact on the soundness of banks and financial stability; and (iii) contingency planning and crisis management. A revision to the MOU in May 2017 clarifies that for regulatory projects which have a substantial impact on the soundness to the banking system (e.g., regulations on capital, liquidity, or concentration risk) and hence for regulatory powers with a macroprudential focus, a co-lead between SNB and FINMA should be instated.

13. There is also a tripartite MOU between the FDF, FINMA and the SNB. Besides the bilateral committees established by the SNB-FINMA MOU, a trilateral MOU between the FDF, the SNB, and FINMA prescribes regular trilateral meetings. This MOU governs the cooperation between the three authorities, which includes the exchange of information on financial stability and financial market regulation issues, as well as collaboration in the event of a crisis that could threaten financial stability. The objective is to improve and strengthen the stability of the Swiss financial system, with the intention of taking due consideration of the impact of their actions on the sphere of responsibility of the other parties of the MOU and coordinating their activities. The three parties are

⁴ According to Article 5 paragraph 2e of the National Bank Act, one of the tasks of the SNB is to contribute to the stability of the financial system. This contribution is made in the context of the SNB's monetary and foreign exchange policy. Furthermore, the preservation of financial stability is specifically referred to in Article 19 paragraph 1 of the National Bank Act, which entrusts to the SNB the task of monitoring the payment and clearing systems.

⁵ Article 5 of the Financial Market Supervision Act 8 (FINMASA).

⁶ https://www.snb.ch/en/mmr/reference/mofu/source/MoU_en.pdf

expected to hold high level meeting at least twice per year to exchange information and views on financial stability and issues of current interest in financial market regulation. The FDF is responsible for organizing the discussions, and for setting the agenda. However, such high-level meetings have taken place only once in the past few years. Instead, an exchange of information took place at technical levels and in the Committee on Financial Crises established under the MOU. FINMA normally chairs the Committee on Financial Crises, which is responsible for coordinating preparatory efforts and for crisis management.⁷ In the regular meetings of the MOU committees, assessments regarding risks in the Swiss banking sector are shared and discussed, including potential policy actions using the macroprudential instruments.

Box 2. Switzerland: Macroprudential Reform

The most recent macroprudential framework reforms were introduced following the report of the Financial Stability Working Group in 2012

Following the global financial crisis, it was recognized that a review of the macroprudential oversight system was needed.¹ In response, the FDF set up the Financial Stability Working Group in early 2011, tasked with reviewing the structure of macroprudential oversight in Switzerland, and formulating proposals to strengthen it.² In its report "Report on macroprudential oversight in Switzerland," published in February 2012, the Working Group presented three concrete proposals to strengthen macroprudential oversight: (i) introduce a countercyclical buffer; (ii) tighter capital regulations related to mortgages; and (iii) enhanced access for the SNB to information on financial market participants, and the creation of a legal foundation for the exchange of information between the SNB and the FDF to improve cooperation in the context of crisis prevention and crisis management. However, the Working Group concluded that there was no need to change the macroprudential mandates of the SNB and FINMA as they saw the existing mandates as "sufficiently well-formulated."

Source: Financial Stability Working Group, "Report on Macroprudential Oversight in Switzerland", February 2012.

¹ The Control Committees of the National Council and Council of States published a report on May 30, 2010 on the lessons learned from the financial crisis, in which they recommended reviewing legislative changes which would give FINMA and the SNB precise objectives in the oversight of the financial sector and provide them with the corresponding authority.

² The working group comprised representatives of the FDF, FINMA, and the SNB, and was chaired by the then head of FDF Widmer-Schlumpf.

B. Willingness to Act

14. The authorities have taken a number of macroprudential measures to address financial stability risks. Against the background of broad-based financial stability risks related to real estate markets, the authorities used a three-pronged approach to address these risks:

- **Tighter bank self-regulation.** The authorities called for the introduction of more far-reaching quantitative rules for mortgage financing. On invitation by the authorities, the SBA revised its

⁷ FINMA chairs the committee unless measures under the control of the confederation or the SNB are to be discussed, in which case the FDF or the SNB may chair the committee.

self-regulation guidelines in 2012 and 2014. The new quantitative requirements for mortgage financing designed by the SBA were subsequently recognized as supervisory minimum standards by FINMA. The standards for new transactions consist of: (i) a minimum down payment of 10 percent of the lending value of the property from the borrower's own funds, which may not be obtained by pledging or early withdrawal of pension assets; and (ii) mortgages must be paid down to two thirds of the collateral value at origination over a 15-year period with linear repayment schedule.⁸

- **Higher risk-weights.** The Federal Council changed the Capital Adequacy Ordinance (CAO) for banks to requiring banks to apply a risk weight of 100 percent for the entire loan amount of mortgages which do not comply with the new minimum standards. The CAO was changed such that mortgages exceeding 80 percent of the property value will have a risk weight of 100 percent (up from 75 percent) applied to the part of the loan exceeding the 80 percent threshold. FINMA also tightened rules for risk weighing mortgages by requiring banks using an internal ratings-based approach to apply a bank-specific multiplier when calculating risk-weighted assets for Swiss owner-occupied residential mortgages. The multiplier is to be applied to new and renewed mortgages.
- **Raising the CCyB.** The Federal Council decided to activate the CCyB in February 2013, on the proposal of the SNB. The February 2013 decision implied that banks had to hold a CCyB of 1 percent of their risk weighted, direct or indirect, mortgage-backed positions secured by residential property in Switzerland by September 30, 2013. To further contain the build-up of real estate market imbalances, the CCyB was increased to 2 percent effective end-June 2014. The increase in the CCyB was announced in January 2014.

⁸ Before a revision in 2014, self-regulation rules stipulated that mortgages had to be amortized to two-thirds of the collateral value within a maximum of 20 years, without constraining the repayment schedule to be linear.

Box 3. Switzerland: Impact of 2012–14 Macroprudential Measures

To reduce risks in the Swiss mortgage and real estate markets, a series of measures were taken between 2012 and 2014. These measures include stricter capital requirements for high-LTV mortgage loans, the revision of the self-regulation rules in 2012 and 2014, and the activation/increase of the CCyB in early 2013/14.

Overall impact. In response to the package of measures, the dynamics on the Swiss residential mortgage and real estate markets have slowed compared to 2012. Both residential real estate prices and mortgage volumes have recorded slower growth. These observations suggest that, together, the measures have had an impact on mortgage lending and real estate prices. In addition, the activation and increase of the sectoral CCyB were important factors in helping preserve and, in some cases, increase the banking sector's resilience. These results are also in line with the finding that a combination of multiple tools is more effective than using one tool aggressively (see IMF, 2013).¹

Estimating the impact of individual measures. It is difficult to disentangle the respective impacts of the various measures, given their simultaneous implementation and the difficulty to control for the intensity at which the different tools have been used. Overall, however, experience in Switzerland suggests that a combination of supply—and demand—side measures coupled with repeated public warnings by authorities seems to have been effective on the market dynamics so far.

- Basten and Koch (2015, 2017) examine how the activation of the sectoral CCyB has affected mortgage supply, its pricing and its LTV distribution. They find that banks affected by the CCyB (either because they are mortgage specialized or because they are capital constrained) reduced mortgage growth rates and raised mortgage rates relatively more than their competitors. However, they do not find evidence that these banks raised prices more for high LTV mortgages or substituted low- for high LTV customers.
- In line with the work by Basten and Koch (2015, 2017), SNB researchers find that some of the banks affected by the sectoral CCyB reduced their mortgage growth rates. Regarding the effects on the LTV distribution, SNB researchers find contrasting results: banks affected by the CCyB reduced their mortgage share with LTV between 80–90 percent but increased their mortgage share with LTV between 66–80 percent (that receive a lower risk-weight). Thus, the risk-weighting schemes did matter for the CCyB effects.

The reduction of LTV risk-taking is not only observable for banks affected by these measures, but also in the banking system. However, the reduction of LTV risks was accompanied by an increase of affordability risks (measured by LTI ratios) in the banking system. While there is no evidence that banks affected by the measures increased LTI risks more than other banks, the macroprudential measures did not prevent the increase in affordability risk in the banking system.

Source: SNB and IMF staff.

¹ See Staff Guidance Note on Macroprudential Policy (IMF, 2014).

C. Information

15. The SNB and FINMA have a well-established framework for sharing information.

FINMA has access to all information and documentation that it requires in order to fulfill its tasks, and the institutions supervised by FINMA are obliged to immediately report any significant incidents.⁹ However, the access rights of SNB to information on financial market participants are limited to the gathering of statistical data.¹⁰ To get information beyond that, the SNB relies on either (i) exchanging of information with FINMA; or (ii) voluntarily information sharing by financial market participants.¹¹

16. The MOU between FINMA and the SNB specify information sharing between the two agencies. FINMA and the SNB are allowed to exchange non-public information, if required for fulfilling their mandates.¹² The MOU lists information that should be shared, including: (i) assessment of the various risk exposures for the banking sector, particularly for the SIBs; (ii) assessment of capital adequacy and liquidity of the banking sector, particularly for the SIBs; and (iii) conclusions from the risk assessment for small and medium-sized banks. It also states that FINMA will inform the SNB of important supervisory findings about the SIBs and the banking sector in general. Thus, the information that should be shared according to the MOU is general, but in practice FINMA shares quite detailed data with the SNB, in particular with respect to the systemic banks.

17. A tripartite MOU also specifies information sharing between FINMA, the SNB, and the FDF.¹³ The type of information specified is quite general and the exchange of information is expected to take place at least twice a year between the State Secretary of the FDF, the CEO of FINMA and the Vice Chairman of the Governing Board of the SNB. In fact, such high-level meetings have not taken place for several years.

D. Communication and Reporting

18. The SNB publishes an annual Financial Stability Report. The main purpose of the report is to draw attention to risks or imbalances which could pose a threat to the stability of the system in the short or the longer term. The financial stability report covers, among others, the two G-SIBs. Domestic SIBs (D-SIBs) are also analyzed and treated as a group, where the focus has been on

⁹ Article 29 paras. 1 and 2 of, FINMASA.

¹⁰ Articles 14 to 16 of the NBA. SNB also has rights to information related to payment and clearing systems.

¹¹ The Swiss Financial Market Infrastructure Act (FinfraG) was passed by Parliament on June 19, 2015 and entered into force in January 2016. In connection therewith, Art. 16a and Art. 50 of the National Bank Act entered into effect also on 1 January 2016. The relevant law in force today is substantially unchanged from the draft legislation that was consulted in December 2013. Minor additions in the final law enhance further the cooperation between SNB and FINMA in relation to access to, and exchange of, information.

¹² Article 23 (b) of the Banking Act, Article 50 of the NBA.

¹³ <https://www.snb.ch/en/mmr/reference/tripartite/source/tripartite.en.pdf>

mortgages and the real estate market. Internally, a quarterly assessment of financial stability risks is performed and communicated to the Board.

19. FINMA also publishes analyses of financial stability in Switzerland. Its annual report has some brief discussion of financial stability concerns and results from stress tests of banks' mortgage portfolios. Internally, the semi-annual Risk Monitor analyzes risks to the financial sector in general, and the semi-annual Real Estate Monitor covers developments in the real estate and mortgage markets, although they are not publicly available.

20. The sectoral CCyB decision is reflected in press releases. Press releases inform the public about the Federal Council's decision to (de) activate or adjust the sectoral CCyB. Simultaneously, the SNB publishes and motivates the proposal on which the Federal Council decision was based; FINMA, too, states its view in a press release. The fact that all three institutions publish their position ensures a degree of transparency with respect to their view of the situation. For instance, in 2013, FINMA did not support the activation of the CCyB, and stated in a press release that they would have preferred to wait and see if the other measures would have an effect on mortgage lending growth.

E. Assessment and Recommendations

21. Overall, the institutional aspects of the macroprudential framework worked well in 2012–14, when the authorities acted urgently and convincingly. The combination of supply- and demand-side measures, coupled with repeated public warnings by the authorities seems to have been effective on market dynamics such as house prices and mortgage credit growth (Box 3).

22. However, some institutional aspects of the macroprudential framework constrain new measures. There is only one mandated (supply-side) tool, which is set near its limit. Banking sector self-regulation requires the cooperation of the sector, which may not always be forthcoming (as was the case in mid-2018) or not on a timely basis. With the ability to act quickly constrained by the need to agreement with the sector, reliance on self-regulation agreements can contribute to inaction bias. In addition, the key decision-making role of the government (the Federal Council) built into the current institutional framework can also contribute to inaction bias through political pressures.¹⁴

23. The macroprudential framework's operational agility should be enhanced and expectations to act should be specified to address inaction bias. The following actions are recommended, aiming to specify expectations—and not only possibilities—for actions by each authority, for which they should be publicly accountable:

- The Federal Council should create the new macroprudential tools, as listed in the next chapter;

¹⁴ See discussion in the 2014 IMF Staff Guidance Note on Macroprudential Policy and the 2014 FSAP Technical Note on Macroprudential Policy for a discussion of how the Swiss framework compares internationally.

- Under its existing financial stability mandate, the SNB would trigger the process to calibrate any current, expanded, or future tools;
- On a comply-or-explain basis, and after consultation with the FDF, FINMA would be expected to calibrate the tools, possibly within certain predetermined ranges (e.g., LTVs between 75–90 percent);
- As future circumstances require, and on a comply-or-explain basis, the SNB and FINMA should propose new macroprudential tools to the FDF.

24. Transparency on systemic-risk surveillance and macroprudential policies should be increased. A statutory requirement for regular meetings between the FDF, the SNB, and FINMA, with prescribed public communications on systemic risks and macroprudential policies would enhance transparency and support accountability. This approach could build on the existing arrangements for information exchange between said agencies; the tripartite MoU should be revitalized with clearer operational modalities.

MACROPRUDENTIAL TOOLS AND FRAMEWORK FOR SYSTEMIC RISK ANALYSIS

A. Macroprudential Tools

25. The CCyB is a preemptive macroprudential measure that requires banks to build up capital gradually as imbalances in the credit market develop. The CCyB was implemented into Swiss legislation in July 2012. The CCyB is applicable to Swiss banks and to subsidiaries of foreign banks in Switzerland and supplements other capital requirements. The Swiss regulatory framework regarding the CCyB has been designed in such a way that allows both for its use according to Basel III definitions (broad-based) or as a sectoral instrument targeting specific segments of the domestic credit market. The broad-based CCyB is currently set at 0 percent, whereas the sectoral CCyB on mortgage exposures is currently set to 2 percent, with a current upper limit of 2.5 percent

26. Most banks use the standardized approach to household sector capital requirements. The vast majority of banks use the standardized approach, including the following risk weights:

- A risk weight of 35 percent for mortgage loans secured by residential property in Switzerland and abroad, applies to the part of the position (tranche) smaller than or equal to two-thirds of the market value.
- A risk weight of 75 percent for mortgage loans secured by residential property in Switzerland and abroad, applies to the part of the position (tranche) larger than two-thirds but smaller or equal to 80 percent of the market value.
- A risk weight of 100 percent for mortgage loans secured by residential property in Switzerland and abroad applies to the part of the position (tranche) larger 80 percent of the market value If

the mortgage loan does not meet certain requirements as defined in the SBA self-regulation on mortgage financing recognized by FINMA as a minimum standard in 2014 a risk weight of 100 percent applies for these positions. There is also a 100 percent risk weight for positions secured by other properties.

- Risk weights applying to mortgages on non-income producing residential real estate can be substantially lower for banks using the Internal Ratings Based (IRB) approach. Currently UBS and Credit Suisse apply the advanced IRB approach while two large Cantonal banks apply the foundation IRB approach.

27. The ability to implement mortgage loan restrictions is limited without agreement of the SBA.

- **LTV.** There is no quantitative cap on LTV, only the specific delegated-regulation by the SBA in the mortgage, which has been approved by FINMA as a minimum standard, requires a minimum down payment of 10 percent of the internal bank mortgage lending value, coming from a source other than occupational benefits provision). If banks do not comply with the delegated regulation, 100 percent risk weighting for the entire mortgage loan amount applies.
- **DStI.** There is no quantitative cap on DStI ratio, only a qualitative requirement outlined in the general delegated-regulation by the SBA in the mortgage market, which has been approved by FINMA as a minimum standard and requires the bank to proceed to credit evaluation. For owner-occupied properties, the financial capacity of the borrower has to be assured over the long term (using long-term average interest rates and not on current rates).
- **Amortization.** The specific delegated-regulation by the SBA, which has been approved by FINMA as a minimum standard, requires the mortgage debt to be reduced to two-thirds of the lending value of the mortgage within a maximum of 15 years. If the banks do not comply with the delegated-regulation, a 100 percent risk weighting for the entire mortgage amount applies.

28. The SNB's responsibility to identify SIBs and their systemically relevant functions is regulated by law. Systemically relevant functions include, but are not limited to, domestic credit and deposit business as well as payment systems. Additional criteria such as size, risk profile and interconnectedness can elevate a bank's systemic relevance. Subsequent enforcement of the regulatory consequences is executed by FINMA. Credit Suisse and UBS have both been designated as G-SIBs by the Financial Stability Board (FSB). They are also highly relevant for financial stability in Switzerland and have hence been designated as systemically important by the SNB. In addition, there are three D-SIBs: PostFinance, Raiffeisen Group and Zürcher Kantonalbank. The SNB is continuously monitoring the banking system. If needed, it will designate other banks or change existing designations.

29. While not part of macroprudential measures, tax policies to promote home ownership have significant impact on the demand for mortgages. For residential property in Switzerland the imputed rental value (i.e., the equivalent rental value of owner-occupied property) is fully

taxable, while at the same time value-preserving maintenance costs, certain operating costs, value-enhancing energy measures and paid mortgage interest are tax-deductible. Consequently, the tax system, through the deductibility of mortgage interest, incentivizes households to take out mortgages.

Assessment and Recommendations

30. The macroprudential toolkit should be expanded. The (sectoral) CCyB worked well to increase banks' resilience to credit losses related to real estate, but as a supply side instrument it is not the first-best option to address risks associated with affordability. The use of self-regulation to address these risks in the housing worked effectively in 2012–14, but securing an agreement on bank self-regulation depends on the willingness of the banking sector to address the identified risks in a timely manner. In this context, the tool box should be complemented with mandated supply- and demand-side measures such as LTV, DTI, DStI and amortization requirements.

31. More flexibility is needed in the sectoral CCyB. On the existing macroprudential toolkit, there is a need for more flexibility regarding the sectoral capital buffers, including raising the limit above 2.5 percent of risk-weighted assets. With the sectoral CCyB currently close to the maximum of 2.5 percent, there is a case for raising the limit to effectively address sectoral risks, should they arise. Also, risks can increase independently of the rate of credit growth (the current trigger), so broadening the trigger or abolishing it altogether in the face of a build-up of risks would improve agility and ease of action.

32. The plan to advance national adoption of the Basel III framework for income-producing residential real estate, targeting the residential investment property segment, is welcome. The finalized Basel III standard states that higher risk weights should be applied for income-producing residential real estate (IPRRE) loans with LTV higher than 60 percent than currently applied in the CAO. Public consultation regarding the adaptation of the CAO was opened on April 5, 2019. A core part of this proposal is an increase in the risk-weights for IPRRE with LTV greater than 66 percent.¹⁵

33. The tax incentives for taking on large mortgages should be removed. The current tax regime gives strong incentives for households to take on more mortgage debt than they otherwise would. This contributes to a high level of mortgage debt and increases household vulnerability to adverse macroeconomic and interest rate shocks. The tax deductibility of mortgage interest payments for private households should be removed. While reforms in this area are politically sensitive, the current low interest environment represents a window of opportunity to eliminate this incentive to accumulate debt.

¹⁵ <https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-74588.html>

B. Systemic Risk Analysis

34. The SNB-internal decision on whether to propose an activation, adjustment or deactivation of the CCyB, is based on guided discretion. This process is based on a guided-discretion approach, characterized by a rule-based and a discretionary component. In the rule-based component, EWIs measure the imbalances in the credit and real estate markets. The credit-to-GDP gap (as recommended by the Basel Committee for Banking Supervision) as well as the real estate price-to-rent indicators are the core EWI considered. Following the Basel Committee's guidelines, the activation and maximum thresholds for those EWI are based on the imbalances attained during the previous boom/bust financial cycle in Switzerland (1980–90s). The discretionary component of the approach is based on the monitoring of secondary indicators such as bank risk-taking or market risk indicators. Due to the lack of historical depth of the data, expert judgment generally forms the basis for the calibration of these EWI. When these key indicators depict broad imbalances building up in the system, the SNB decision will draw heavily on this guidance. When the key indicators convey a heterogeneous picture of the situation on the domestic credit and real estate market, more discretion enters the decision. In this case, the analysis of a broader set of additional quantitative and qualitative indicators also flows into the decision (discretionary component). Once activated, the level of the buffer will be set proportionally to the degree of imbalances. This guided discretion approach is designed to ensure a degree of consistency over time in the decision taken, while providing the necessary flexibility, given the inherent uncertainty and the lack of experience associated with operating a CCyB.

35. SNB uses both simple ratios and models for real estate analysis. The models include an asset pricing model as well as a model that relates housing price dynamics to macroeconomic developments (income, population, interest rates, residential construction, and construction costs). The SNB analysis indicates that there are imbalances in both the apartment and apartment buildings segments. The risk of a price correction is particularly high in the latter segment due to the strong price increases in recent years and growing vacancy rates. The assessment of commercial real estate prices is more difficult due to data limitations (both regarding prices and fundamental factors). While regional price developments are also taken into account, they are not modeled on a regular basis. This is due to the fact that most fundamental factors are not available on a regional basis.

36. The monitoring of household debt is a key input to macrofinancial risk analysis. Given the exposure of the Swiss banking system to the mortgage and real estate markets, the monitoring and assessment of household debt plays a central role in the financial stability risk analysis of the SNB. This assessment relies on two main analyses reviewing several indicators measuring the quantity and quality of household credit.

- First, the SNB monitors the evolution of aggregate household indebtedness based on different ratios, such as the Credit-to-GDP ratio or the ratio of household debt to disposable income. Based on this analysis, the SNB observes that household indebtedness has been growing steadily and at a strong pace since 2001 to reach a high level, both historically and by international standards. This growing indebtedness increases the vulnerability of households to adverse macroeconomic and interest rate shocks.

- Second, the SNB assesses risks related to household mortgage loans based on a variety of indicators, and notably LTV and LTI ratios. In particular, the SNB has been monitoring the share of new mortgages with high LTV or high LTI ratios since 2012, based on the “Survey of new mortgages”. The SNB has substantially enhanced its survey on mortgage loans to collect data on new mortgage loans on a loan-by-loan basis for a wider set of characteristics since 2017. This enhancement has generated valuable insights for financial stability risk analysis, e.g., by enabling the analysis of risk correlations among new mortgages.

37. Stress tests primarily serve to assess the adequacy of banks capital buffers and hence the resilience of the Swiss banking system to adverse scenarios. In that context, stress-test results are used as an input, among others, for the calibration of TBTF (structural) capital requirements. Moreover, beyond CCyB decision, stress-tests also serve as an input for further macroprudential policy decisions. For example, the stress test results are used in the current discussions regarding measures to address affordability risks in the residential investment segment of the real estate market. The SNB also applies other tools and analyses including an internally developed score card system to single out risky banks.

38. The authorities have conducted an in-depth analysis of the Swiss shadow banking system. A detailed internal report (about 100 pages) to the Swiss Federal Council. Based on this in-depth-analysis, the authorities published a country case study in the FSB’s Global Shadow Banking Monitoring Report 2014. Measures were introduced as an institutional follow-up to this internal report, in particular:

- A permanent shadow banking working group was created with experts from all three concerned Swiss authorities (FDF, FINMA, SNB). This working group assesses shadow banking risks in Switzerland and coordinates Switzerland’s inputs to the FSB annual shadow banking data collection exercise. It can also recommend regulatory action if warranted.
- The authorities have expanded existing statistical surveys to enhance the monitoring of collective investment vehicles – the most important part of the Swiss shadow banking system.

39. As the microprudential authority the focus of FINMA’s analyses is mostly on individual institutions. FINMA closely monitors and supervises systemically important institutions and conducts semi-annual stress-testing exercises based on macroeconomic scenarios for the two big banks. In addition, stress test based on real estate shocks are of relevance for systemic risks given the large exposure to mortgages in many domestically oriented banks. The results of the stress test results are mostly shared with the SNB at an aggregated level. FINMA has an early warning and Camels-based rating system in place for assessing individual banks and banking groups, which identifies outliers and generates bank ratings. The Risk Barometer covers real estate risks on a quarterly basis. FINMA produces periodic risk monitors that guide supervisory priorities and informs systemic risk discussions.

Assessment and Recommendations

40. Overall, the data availability for financial stability analysis is good, but some data gaps remain. For the banking system as a whole, the data availability has improved significantly over the last decade – in particular in the mortgage lending area – and can be considered as good overall. However, key data gaps remain. In particular, historical data and data regarding detailed information on banks’ current credit portfolios (stock as opposed to new loans) to assess credit risks are lacking:

- **Historical data** are in general scarce in Switzerland. In particular, there are data quality issues, to differing degrees of severity, with historical real estate prices. For the banks’ credit portfolio, historical information is lacking on the type, the quality and the losses before and during the 90’s crisis, a period that the SNB uses to calibrate the stress test models and the EWI. The lack of historical data is a significant limitation for assessing financial stability risks.
- **LTV granularity.** A further limitation is the data availability for assessing the riskiness of the banks’ loan portfolios from a stock (as opposed to new loans) perspective. While the “Survey on new mortgages” provides detailed information on new mortgages at origination, enabling an accurate assessment of credit risks for new mortgages, detailed information – such as up to date LTV and LTI distribution information – on the stock of loans in the banking book is lacking. The SNB is currently evaluating options to enhance the database on credit portfolios (stock) to improve risk assessment. Furthermore, the implementation of the Basel III package of reforms in Switzerland could improve the situation, offering, for example, LTV distributions for the different mortgage sub portfolios.
- **Non-bank real estate activity.** With increasing activity of non-banks (including pension funds), there is a need for better data on real estate activities as a driver of price developments. Corporate real estate price measurement can also be enhanced.

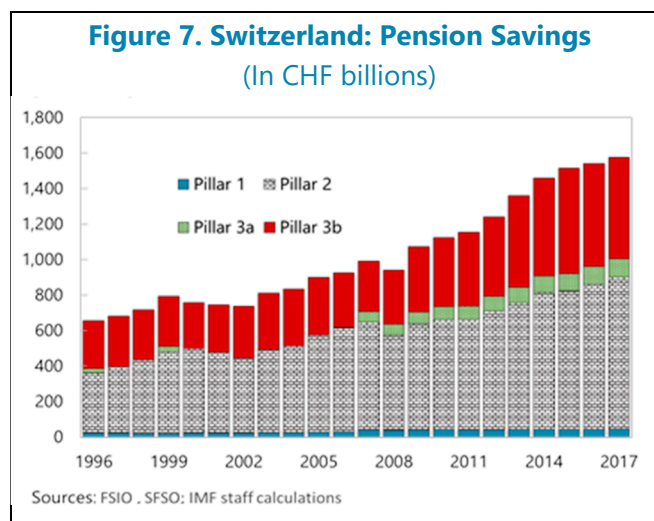
41. The authorities have established a sophisticated organization and analytical framework for analyzing and sharing financial stability risk assessments, but there is scope for enhancements. On the risks identified based on the early warning systems, there is scope to strengthen public and financial sector understanding of the areas of concern, for instance through heat maps, that communicates clearly the degree of concern in a particular segment and aggregate financial stability. Clear communication of policy intentions can help achieve effective transmission of macroprudential action, both when measures are taken and when they are relaxed, as well as counter biases in favor of inaction. On the CCyB, the public communication on the decision process, computation and under what circumstances the buffer would be adjusted could be enhanced. As an example, in this area, the Bank of England has published extensive information on what indicators are key to adjusting the buffer.¹⁶

¹⁶ <https://www.bankofengland.co.uk/financial-stability>

C. Financial Stability Aspects of the Pension Fund Sector

42. Occupational pension funds play an important social role in Switzerland.

Switzerland has a three-pillar pension system.¹⁷ The first pillar is a mandatory pay-as-you-go system administered by the public sector and is conceived as the basic source of retirement income. The second pillar comprises occupational pension plans, and the third pillar is a voluntary personal supplementary system, where employees and self-employed can take out savings plans tied to retirement. Being obligatory for the largest part of employees in Switzerland since 1985, the occupational pension sector is still in an accumulation phase with inflows exceeding outflows. Nevertheless, pensioners already receive about 30 percent of their retirement income from this second pillar pension sector. The mandatory part can be complemented with additional contributions, typically for employees with higher salaries.



43. The pension sector should be closely monitored because of expected demographic changes, the pension funds' substantial assets, and the funds' greater risk-taking investment behavior after the rejection by public referendum of much needed reforms (Figure 7). Data from the sector are incomplete and not sufficiently granular for an extended analysis. The failure of pension reforms in 2017 adds sustainability pressures to the mix of financial risks in the sector. The substantial and growing size of pension funds in a persistent low interest rate environment, along with their common exposures to real estate and the broader financial sector, means that pension funds are likely to also contribute directly to systemic financial risks and contagion channels.

44. Institutions offering second pillar retirement savings include pension funds and (group) life insurers through special vehicles. Pension funds—traditionally tied to a single employer—are the predominant model in Switzerland. Most of these funds are organized as non-profit foundations; cooperatives and public-law entities, too, exist. Group life insurance contracts (“Vollversicherung” or “teilautonom”) for pension funds are the typical choice for companies with only a very small number of employees. Insurance undertakings offering this business are subject to the Insurance Supervision Act and the prudential solvency requirements of the Swiss Solvency Test (SST). FINMA supervises the life insurance business. Insurance undertakings fully bear the risks

¹⁷ Pillar 1 refers to a pay-as-you-go system that all employees contribute to, plus VAT and some other taxes, provides old age pensions and benefits for widowers and orphans. Pillar 2 is the mandatory occupational funded pension scheme financed by both employees and employers. Pillar 3a is a tax preferred savings or investment fund vehicles. Pillar 3b, does not have tax advantages, and includes any investments that are intended to fund retirement.

without recourse to employers. The remainder of this section exclusively deals with occupational pension funds, unless stated otherwise.

Table 2. Switzerland: Pension Schemes vs. Life Insurance

	Pension schemes (personal, group and multi-employer pension schemes)	Private life insurance companies
Type of institution	Legally independent, non-profit entities	Profit-oriented private companies
Legal form	Foundation, cooperative, or public law entity	Joint-stock corporation or cooperative
Task and function	Covering risks associated with occupational pensions (old age, death, incapacity for work, etc.)	Insuring pension schemes / reinsuring pension schemes' risks
Legal basis	Occupational Pensions Act	Insurance Supervision Act
Supervisory organization	Decentralized: cantonal and federal in specific cases	Centralized: federal
Supervisory authority / authorities	National oversight commission (OAK) and regional and cantonal supervisory authorities	Swiss Financial Market Supervisory Authority (FINMA)
Risk assessment	Asset regulations and coverage ratio	Tied assets and Swiss Solvency Test
Liability	Employers and policyholders bear losses	Life insurer bears losses

Source: FINMA.

45. Defined-contribution (DC) schemes are the dominant type of pension plans in Switzerland. 93 percent of active members, accounting for about 85 percent of the pension liabilities, are organized as DC schemes. In the schemes with explicit guarantees from the (local) government, DC and defined benefit (DB) schemes are equally represented. Besides coverage for old age, pension schemes also provide protection against death and disability; benefits extend to surviving family members.

46. Participation in the occupational pension system is mandatory for most employees. Top ups with extra contributions are allowed; self-employed persons, too, can opt in. While the law determines most technical parameters for the mandatory part, pension funds enjoy more flexibility for the non-mandatory business. The system is sufficiently flexible to cater for labor market mobility: benefits are ultimately paid out by a single pension fund, irrespective of the number of funds to which a member and his employers have made contributions, as the savings capital is transferred from the previous to the current fund. For further details, see Box 4.

Box 4. Switzerland: Pension Fund Contributions and Benefits

Old-age insurance under the second pillar is based on individual savings. It is mandatory for employees with an annual income of at least CHF 21,330 and subject to the first-pillar. The obligation to contribute to a pension scheme starts for employees at the age of 17. Before the age of 25, contributions cover only the risks of death and disability; at age 25, old-age, too, is covered. The law prescribes the percentage of the salary that must be credited annually to every insured person. These contributions increase with the insured person's age. At retirement age (normally 65 years for men, 64 for women), the individually accumulated savings finance the old-age pension.

The mandatory part of the occupational pension fund system comprises minimum benefits in the event of old age, death, and disability. Pension funds are free to provide benefits going beyond the statutory minimum (extra-obligatory benefits). Certain groups are not subject to the mandatory scheme, e.g., the self-employed. The mandatory insurance covers annual incomes of up to CHF 85,320. Pension funds insuring also salaries higher than CHF 85,320 or lower than CHF 21,330, are referred to as non-mandatory occupational pension insurance.

On retirement, saved assets are converted into a life-long pension, unless they are paid out as a lump sum. This is accomplished using the conversion rate, which specifies what percentage of the assets equates to the annual pension provided by the fund. The law sets the conversion rate for mandatory occupational pensions. Currently, this is set at 6.8 percent, meaning that the annual pension is 6.8 percent of the saved assets: for every CHF 100,000 in assets, pension funds must pay CHF 6,800 per year. Pension funds set the conversion rates for non-mandatory occupational pensions.

Active members who leave a pension fund for reasons other than old age, death, or disability (e.g., change of employment), are entitled to a withdrawal benefit, also called a vested benefit. When members change employer, the pension fund transfers the vested benefits to the new employer's fund. Members who do not take a new job must notify their current pension fund to which institution the vested benefits should be transferred. They can choose between a personal movable credit account with a bank, or a vested benefits policy in their name with an insurance company—insurance provision is maintained in such cases. If members fail to inform the pension fund, the fund must transfer the vested benefit to the Substitute Occupational Benefit Institution no later than two years after the benefit has been granted.

Vested benefits—in whole or in part—may be drawn before retirement in the following cases:

- To purchase owner-occupied housing;
- On commencement of self-employment; or
- If the insured person emigrates—unless the person moves to a country in the European Economic Area, in which case only the assets related to non-mandatory insurance are paid out.

47. Swiss occupational pension funds have to hold a minimum 100 percent funding level. In addition, a certain fluctuation reserve must also be available (Figure 8). These requirements can be waived for public pension funds if payment of benefits is guaranteed by the (local) government. A funding level below the regulatory threshold needs to be addressed without delay, and pension funds have to demonstrate to the supervisory authority how such an underfunding can be recovered within five to seven years. Regulations on the funding requirement are principle-based, and technical parameters used in calculating coverage ratios are periodically adapted according to changing conditions like the level of interest rates or improvements in longevity expectations. However, the calculated reserves are not explicitly risk-based and therefore do not always comprehensively take into account the risk profile of the fund, potentially overestimating coverage ratios and reserves adequacy.

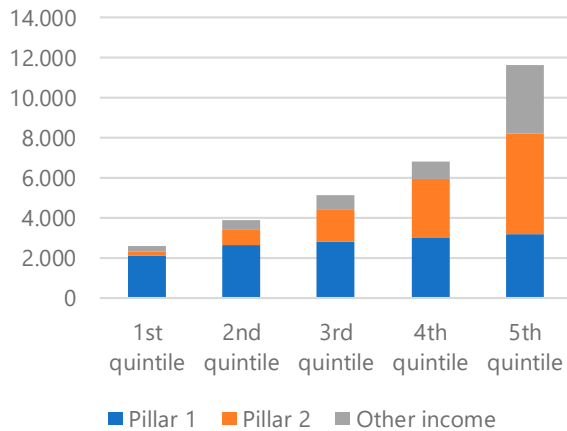
Figure 8. Switzerland: Main Characteristics of the Occupational Pension Fund Sector

Pillar 1 provides a replacement rate of about 42 percent and Pillar 2 another 30 percent, but with large differences across income buckets.

Similar to other countries, there is a trend towards more defined contribution schemes, now accounting for about 85 percent of pension liabilities.

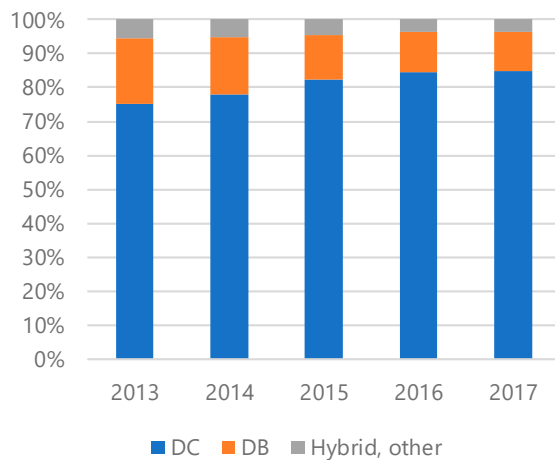
Monthly Income of Pensioners in Different Income Buckets

(In CHF)



Type of Pension Funds

(In percent)

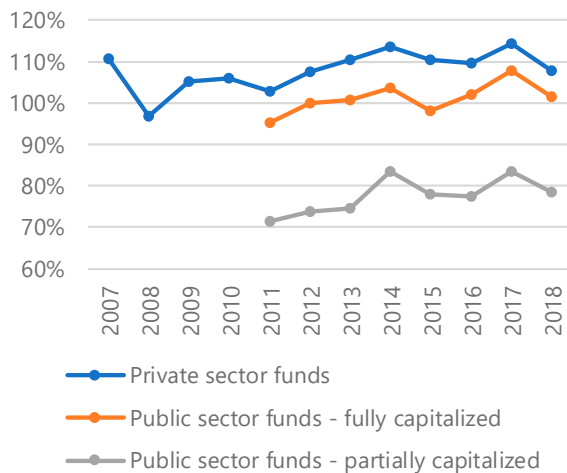


Even with a negative performance in 2018, the average funding level for private sector pension funds remains about 108 percent...

...but more than 8 percent of private pension funds recorded a funding deficit as of end-2018, as well as the majority of public schemes.

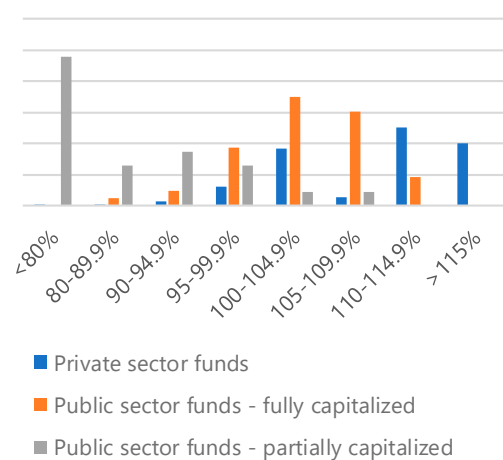
Funding Level

(In percent)



Distribution of Funding Levels

(In percent)



Source: IMF staff calculations based on data by Credit Suisse, OAK BV, and UBS.

Notes: Income data for 2012–14. Other income includes lump-sum payments from the 2nd pillar.

48. Investment regulations are rather liberal, allowing pension funds to invest in a broad range of asset classes and without any restrictions on foreign investments. Exposure limits for equity and real estate exist (50 and 30 percent of total assets, respectively), but these thresholds can be exceeded if the pension fund demonstrates that general principles of prudent management, security and risk diversification are met. In these cases, additional disclosure requirements apply. Investments in alternative assets are allowed up to a share of 15 percent. In addition to these asset class limits, there are limits on individual holdings and issuers, e.g., 5 percent on equity and real estate, and 10 percent on bonds issued by the private sector. Lastly, a maximum of 30 percent unhedged FX exposure is allowed.

D. Structure of the Pension Fund Market

49. In international comparison, the Swiss occupational pension sector is large, with assets amounting to almost 150 percent of GDP, and expected to continue growing. The sector, now managing close to CHF 1 trillion, is still in an accumulation phase in which contributions significantly exceed benefit payouts. Being mandatory only since 1985, the saturation phase will not be reached within the next decade and is expected to be reached even later as increasing labor migration is resulting in net contributions to the system.

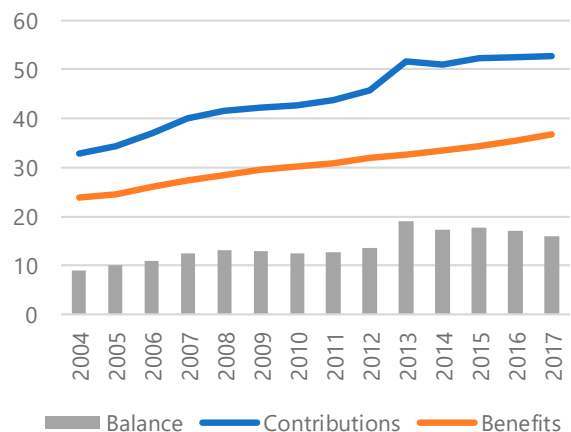
50. The sector has been consolidating substantially over the last decade; yet the number of supervised schemes totaled almost 1,700 in 2017 (Figure 9). The number of single-employer funds has declined by almost two thirds since 2004; assets are increasingly managed by collective schemes, now accounting for about 43 percent of assets. Pension funds operate mostly as foundations, and only less than 6 and 1 percent of the funds are public-law entities and cooperatives, respectively.

Figure 9. Switzerland: Consolidation Trend in the Pension Fund Sector

Swiss pension funds are still in an accumulation phase with contributions exceeding benefits.

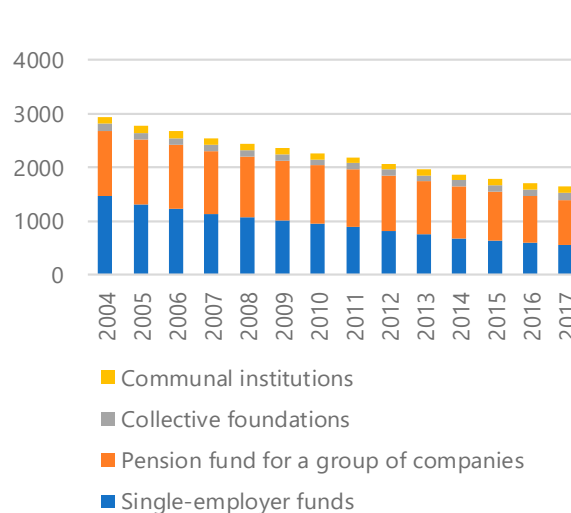
Contributions and Benefits

(In CHF billion)



A clear consolidation trend can be observed—in particular, the number of single-employer funds is declining...

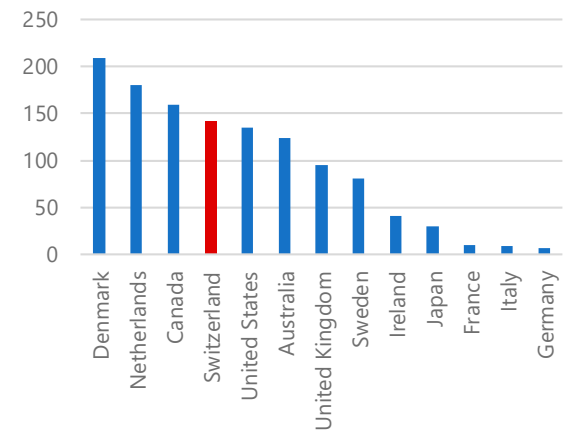
Number of Pension Funds



The sector is sizable, also in comparison to other OECD countries, reaching almost 150 percent of the GDP.

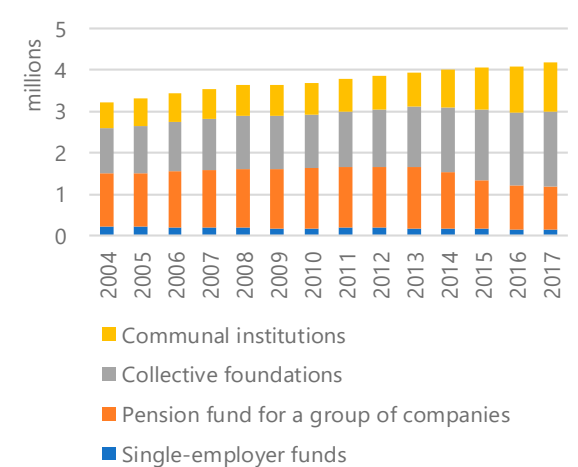
Pension Fund Assets

(In percent of GDP)



...while the number of active members in collective foundations is increasing.

Active Members



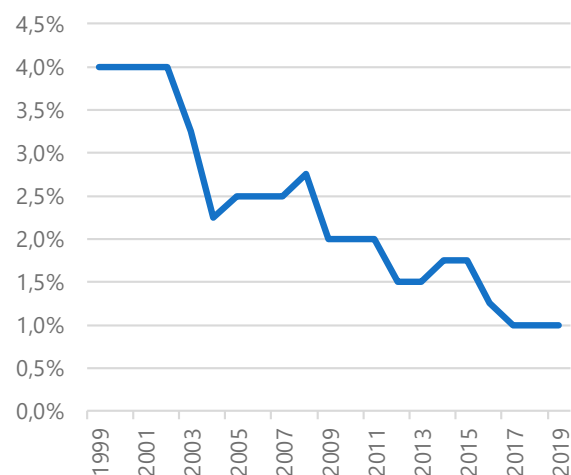
Source: IMF staff calculations based on data by the Federal Office for Social Security, the OECD, and OAK BV.

Figure 10. Switzerland: Key Parameters for Pension Liability Valuation

The Federal Council sets the minimum interest rate, broadly in line with long-term market yields, but typically above the risk-free yield.

Minimum Interest Rate

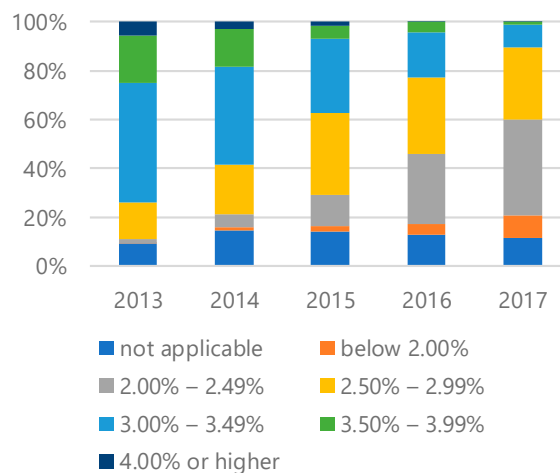
(In percent)



Pension funds have lowered the technical interest rates considerably in recent years...

Technical Interest Rates

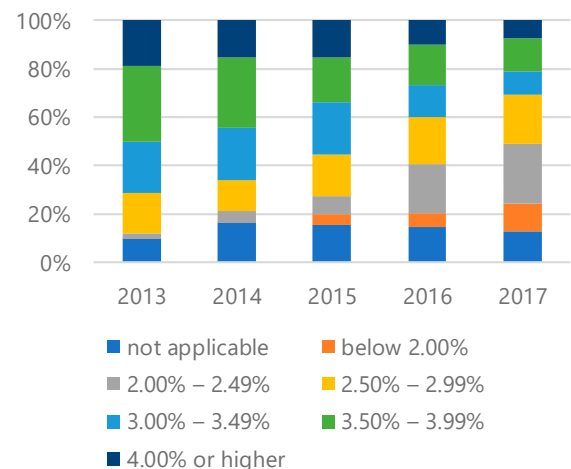
(In percent)



...in line with promised yields for future pensions, with 51 percent still being above 2.5 percent p.a.

Promised Yield for Future Pensions

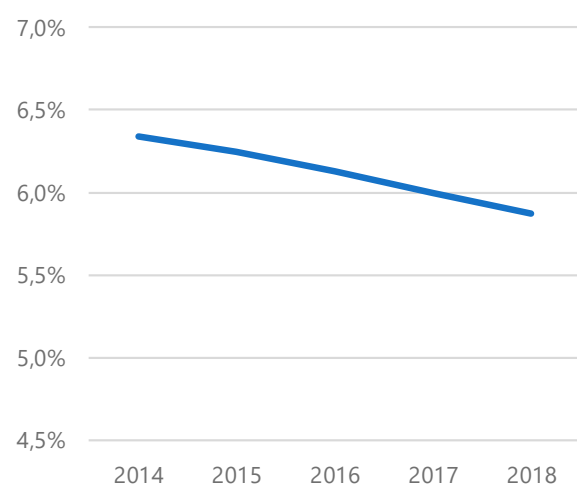
(In percent)



Conversion rates (for both obligatory and non-obligatory), which can be set freely by pension funds for non-obligatory business, have declined below 6 percent in 2018.

Conversion Rate

(In percent)



Source: IMF staff calculations based on data by the Federal Council, OAK BV, and Swisssanto.

E. Risks and Vulnerabilities

51. While the sector is, on average, adequately funded, medium-term challenges stem from the low-yield environment and aging. Technical rates for the mandatory part of the pension business are politically determined; pension funds can adjust their liabilities in the extra-obligatory business only (Figure 10). Both the minimum interest rate of 1 percent and the conversion rate of 6.8 percent put pressure on pension schemes—the latter translates into a technical interest rate between 4.5 and 5.0 percent which is very high in the current low and negative interest rate environment. Consequently, active members are increasingly cross-subsidizing retired members.

52. With liabilities being rather stale and only partially adjustable, pension funds need to search for yield in their investments (Figure 11). The relative share of liquid assets and CHF-denominated bonds has declined markedly over the last decade, while the share in equities, real estate, and alternative investments has risen. These three asset classes account for about 59 percent of total assets. Foreign currency exposures—limited to 30 percent unless hedged—are relatively important: 56 percent of the funds have an FX exposure of at least 15 percent. Overall, however, investment risks are on aggregate fairly limited. Most pension funds strive for annual volatilities of less than 7 percent. Since 2005, annual return performance averaged about 3 percent, but was negative in 2018 (-3.5 percent)—the worst annual performance since 2008.

53. Collective schemes compete for market share, and some act less prudently. They keep technical parameters at levels that are beneficial to members in the short term, but less likely to be sustainable. Accordingly, governance and internal control systems have attracted supervisory attention. OAK BV has issued instructions that aim to enable uniform information gathering by the cantonal authorities. This information, at the level of individual pension plans as opposed to the scheme of the fund as a whole, would underpins risk assessment for single-employer pension funds. Furthermore, the instructions aim to increase the transparency of risk diversification and decision-making structures, and to set minimum standards for organizational and loyalty requirements.

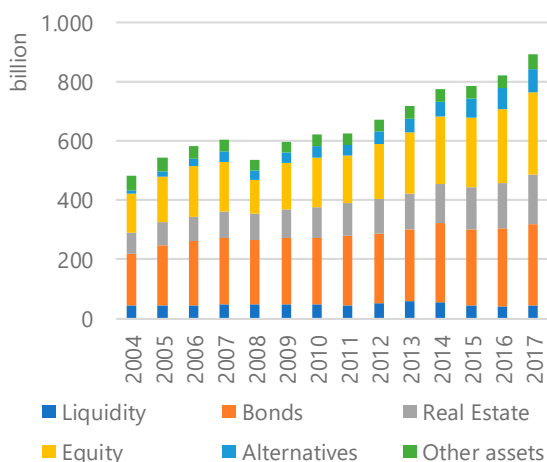
Figure 11. Switzerland: Asset Allocation in the Pension Fund Sector

The relative shares invested in equities, real estate and alternatives have risen, while investments in liquid assets and (CHF denominated) bonds have become less popular.

Swiss pension funds increasingly diversify their assets abroad, taking on currency risks. FX-denominated assets exceed 20 percent for almost every third fund.

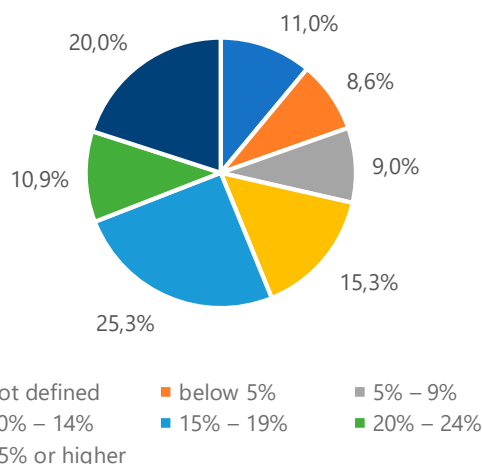
Asset Allocation

(In CHF billion)



FX Exposure

(In percent)

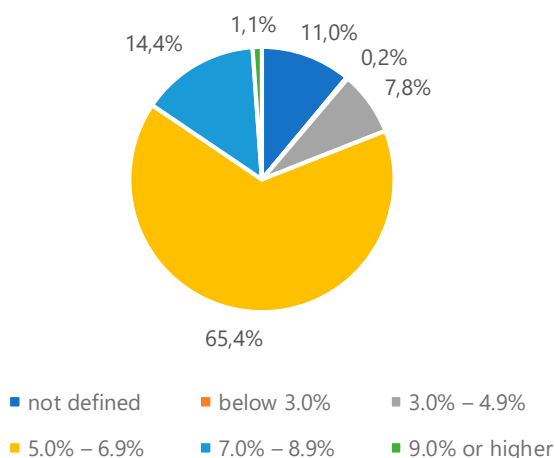


A side effect of strong diversification is a rather low volatility: For 85 percent the annual volatility is estimated to be lower than 7 percent.

Based on preliminary 2018 figures, pension funds recorded the worst performance since 2008 (-3.5 percent vs. an average of +3.2 percent between 2006 and 2017).

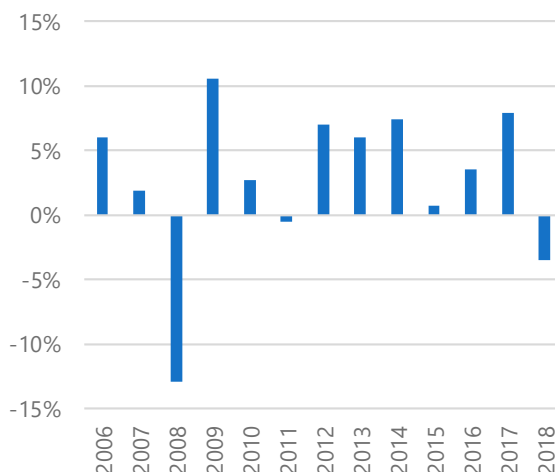
Estimated Annual Volatility

(In percent)



Performance

(In percent)



Source: IMF staff calculations based on data by the Swiss Federal Office for Statistics, UBS, and Swisscanto.

54. In times of distress, pension funds can draw on recovery contributions by employers and active members—ultimately, also the Guarantee Fund stabilizes the system further (Figure 12). Pension funds have to take actions in case their funding levels declines below 100 percent. Possible recovery measures include recovery contributions by pension scheme members and employers, as well as (temporary) reductions in attributed yields. Since 2008, those recovery contributions totaled CHF 10.7 bn, of which 92 percent were paid by employers. The Guarantee Fund which secures the payment of retirement benefits in the case of insolvency has paid out about CHF 660 million over the last ten years. The vast majority of these insolvencies were related to individual misbehavior including fraudulent activities, and insufficient internal controls and governance.

55. The effectiveness of recovery measures depends on the composition of a pension fund's business and the member structure. Higher member contributions can naturally only be collected from active members, but not from retirees, increasing the effectiveness for pension funds with a high share of active members. Lowering attributed yields is another option but limited by the minimum interest rate for obligatory business—only in severe cases of under-funding a pension fund can go below this rate for a limited period in time. Nevertheless, the impact of lowering the yield by 1 percent is bigger than of raising contributions by 1 percent, resulting in an increase in the funding level of at least 0.6-percentage points for about one third of the pension schemes.

Figure 12. Switzerland: Recovery Measures and Insolvencies

Employers and active members made recovery contributions of more than CHF 10 bn since 2008.

Recovery Contributions

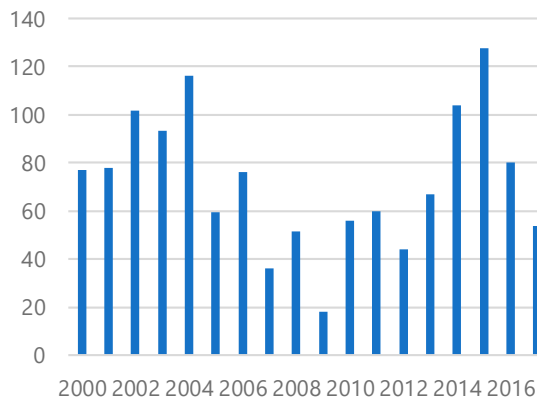
(In CHF billion)



The Guarantee Fund paid out CHF 660 million over the last ten years (net of recoveries).

Net Insolvency Payments by the Guarantee Fund

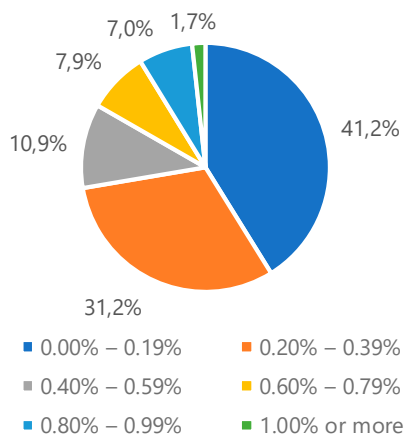
(In CHF million)



Recovery contributions of 1 percent have only a minor effect on the funding level...

Recovery: Funding Level Increase After Raising Contributions by 1 Percent

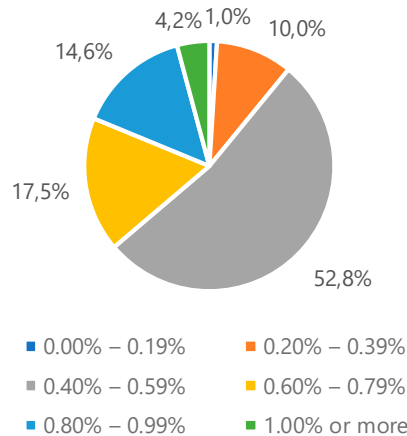
(In percent)



...while lowering attributed yields are more effective.

Recovery: Funding Level Increase After Lowering Attributed Yields by 1 Percent

(In percent)



Source: IMF staff calculations based on the Federal Office for Statistics and the OAK BV.

Note: The pie charts show the distribution of the projected annual increase in funding levels (in percentage points) across pension funds (measured in terms of pension liabilities), depending on the recovery measure.

F. Summary and Recommendations

56. Data gaps significantly compromise market-wide horizontal and systemic risk analyses. Official statistics are available only annually and with a considerable delay; other surveys, including by OAK BV, are voluntary for pension funds. Cantonal authorities collect annual statements, but only a few allow electronic submission. It is important for systemic risk analysis, that FINMA, the SNB, and OAK BV better monitor pension funds' investment flows and search for yield, particularly in domestic real estate markets. Regular information on risk sensitivities, at least for larger pension funds, would also support horizontal analyses for the market and certain peer groups.

57. The fragmented supervisory framework complicates the exchange of information on potential systemic risks. A formal platform is lacking for discussions on developments in the pension fund sector among Swiss authorities responsible for financial stability analysis and macroprudential surveillance to discuss developments in the pension fund sector. While pension funds are not systemically relevant per se, their investment behavior can contribute to the build-up of assets price bubbles, underscoring the importance of regularly assessing investment flows and risk appetite across financial sectors. Communication lines should be established to facilitate the exchange of information, particularly between the SNB, FINMA, and OAK BV.

58. Shortcomings exist in transparency and potentially the incentive and governance structure of collective schemes. Transparency for collective schemes should be improved and include compulsory disclosure of key risk figures, particularly economic funding levels. Based on these disclosures, OAK BV and cantonal authorities should scrutinize the long-term viability of the potentially ruinous competition of the schemes.

Appendix I. Implementation of 2014 FSAP Recommendations on Macprudential Policy

2014 FSAP Macprudential Framework Recommendation	Views/Implementation Status
Macprudential Framework	
Transparency and accountability strengthened by highlighting cross agency activity and policy analysis related to financial stability and macroprudential policies to the public.	Implemented. Cross agency activities and policy analysis are communicated to the public using the individual institutions' public communication.
Given the government's powers and interest, the FDF should continue to be directly involved in macroprudential policy discussions.	Implemented. The authorities are regularly assessing the need to update or amend the existing framework to ensure that the stability of the financial system is preserved. FDF will continue to be directly involved in macroprudential policy discussions, together with SNB and FINMA.
Expanded information sharing and exchange in line with the draft financial market infrastructure legislation, FinfraG.	Implemented. The new Swiss Financial Market Infrastructure Act (FMIA; 2016) ¹ and the new National Bank Act provisions Art. 16a and Art. 50 (2016) enhance the cooperation between the SNB and FINMA on access to and exchange of information.
Broaden and deepen the financial stability analyses, including household and corporate finances, possibly requiring some additional data collection needs.	Implemented. The SNB has substantially enhanced its new mortgage loans survey. Since 2017, it collects data on new mortgage loans on a loan-by-loan basis for a wider set of characteristics, where before (2011–2016) only limited information was available at a portfolio level.

¹ FinfaG and FMIA both denote the Financial Market Infrastructure Act (FinfaG is the German and FMIA is the English abbreviation).

2014 FSAP Macprudential Framework Recommendation	Views/Implementation Status
<p>The analyses and the reporting of the systemic importance of non-banks, including data collection, to the extent needed, could be expanded.</p>	<p>Implemented. Partly as a response to the IMF’s recommendation, the authorities have conducted an in-depth analysis of the Swiss shadow banking system. Informed by this analysis, they published a country case study in the FSB’s 2014 Global Shadow Banking Monitoring Report (Link Country Case Study and Link Media-Release).</p> <p>Follow-up measures included the following:</p> <ul style="list-style-type: none"> • A permanent shadow banking working group with experts from the FDF, FINMA, and the SNB. The group assesses shadow banking risks and coordinates Switzerland’s input to the FSB annual shadow banking data collection exercise. The working group can also recommend regulatory action if warranted. • An expanded statistical survey to enhance the monitoring of collective investment vehicles—the most important part of the Swiss shadow banking system.
<p>Macroprudential arrangements should be reviewed and placing responsibility and powers for macroprudential policies with one institution or committee should be considered.</p>	<p>Partially Implemented. The need to update or amend the existing framework is regularly assessed. The authorities consider strong cooperation between the SNB, FINMA, and the FDF essential for ensuring financial and economic stability. MOUs between the authorities facilitate cooperation.</p>
<p>Adding tools to the macroprudential toolkit to be considered. LTV and LTI caps would be important complements, and tools to contain liquidity and foreign exchange mismatches could be needed as well.</p>	<p>Partially Implemented. LTV and LTI caps were introduced through the self-regulation mechanism with banks, see below. While a tightening of existing self-regulation measures is being considered (see below), addition of further tools to the macroprudential toolkit is not planned.</p>

2014 FSAP Macprudential Framework Recommendation	Views/Implementation Status
Measures for Real Estate and Mortgage Markets	
Consider tightening existing measures and introducing new measures to address imbalances in the housing and mortgage markets.	Partially Implemented. No new tools have been introduced since 2012, and none have been tightened since 2014. The authorities have continued to enforce the FINMA-approved and binding self-regulation and have required banks to take the following measures: (1) stricter amortization requirements; (2) stricter use of second incomes for financial sustainability evaluation; and (3) real estate values must be based on the lower of the market value and the purchase price. Furthermore, FINMA conducted specific on-site supervisory reviews focusing on investment properties, carried out mortgage stress tests of banks, and followed up on any unusual findings.
Existing measures must be fully enforced including by strengthened guidance to auditors and stepped up own on-site inspections.	Implemented. FINMA together with the SNB closely follows and analyzes developments in the mortgage market. Prompted by the authorities—pointing at risks associated with strong mortgage growth and potential corrections in the housing market—the SBA (tightened its self-regulatory) minimum standards for mortgage financing, which were approved by FINMA and came into force on 1 September 2014. FINMA has performed numerous on-site reviews targeting the banks' practices in mortgage business since 2013.
Existing measures could be tightened, including higher capital requirements for high LTV loans and further demands on down payments.	Not Implemented. The authorities are considering higher risks weights for income-producing real estate. Public consultation regarding the adaptation of the Capital Adequacy Ordinance has been opened on April 5, 2019. A core part of this proposal is an increase in the risk-weights for IPRRE with LTV greater than 66 percent. Meanwhile, discussions with the SBA on further strengthening self-regulation are continuing. Recently, the SBA declared publicly that it is considering amendments to its self-regulation.
Targeting affordability should be considered, i.e., some Loan-to-Income limitations.	Partially Implemented. In 2018, the authorities and the SBA discussed introducing a Loan-to-Income limitation as part of discussions to revise the existing self-regulation (see above), but the limitation was not adopted.

2014 FSAP Macprudential Framework Recommendation	Views/Implementation Status
In the absence of clear effects, the authorities should issue its own regulations targeting the demand side, for example LTV and DTI limits.	Not Implemented. While risks in the real estate sector have been rising and can be expected to continue to do so under a persistent low interest rate environment, no macroprudential measures have been taken since 2014.
Increased capital requirements for borrowing secured by real estate in certain regions or areas could be considered in cases where developments are assessed to be risky and a correction would have systemic consequences	Not Implemented. The CCyB could have been used for this purpose, but the SNB is of the view that no strong case can be made for being more granular and targeting macroprudential measures to individual regions.
Measures to address concentration risk and interest rate risks should be part of the macroprudential policy discussion.	Implemented Under art. 45 of the CAO, FINMA may impose additional capital requirements if deemed necessary. In addition to bank size and complexity, determining the general level of additional capital requirements stipulated in the FINMA Circular 2011/2, FINMA is entrusted with the ability to make explicit provisions for individually tailored additional requirements, for example if an institution exhibits a high level of interest rate risk or a high concentration of risk. Any other potentially material source of systemic risk, concentration risk and interest rate risk are part of the macroprudential discussions of the authorities.
Attention should be given to consistency of measures across mortgage originators (banks and nonbanks).	Implemented. Based on developments in recent years, there is no evidence of regulatory arbitrage.
The tax incentives for taking on mortgages should be reconsidered.	Partially Implemented. Since 2014, several parliamentary proposals with the clear intention to abolish the taxation of imputed rents for owner-occupied housing failed to find majority support. In 2019, parliament is expected to discuss new proposals for a system change in the taxation of home ownership.