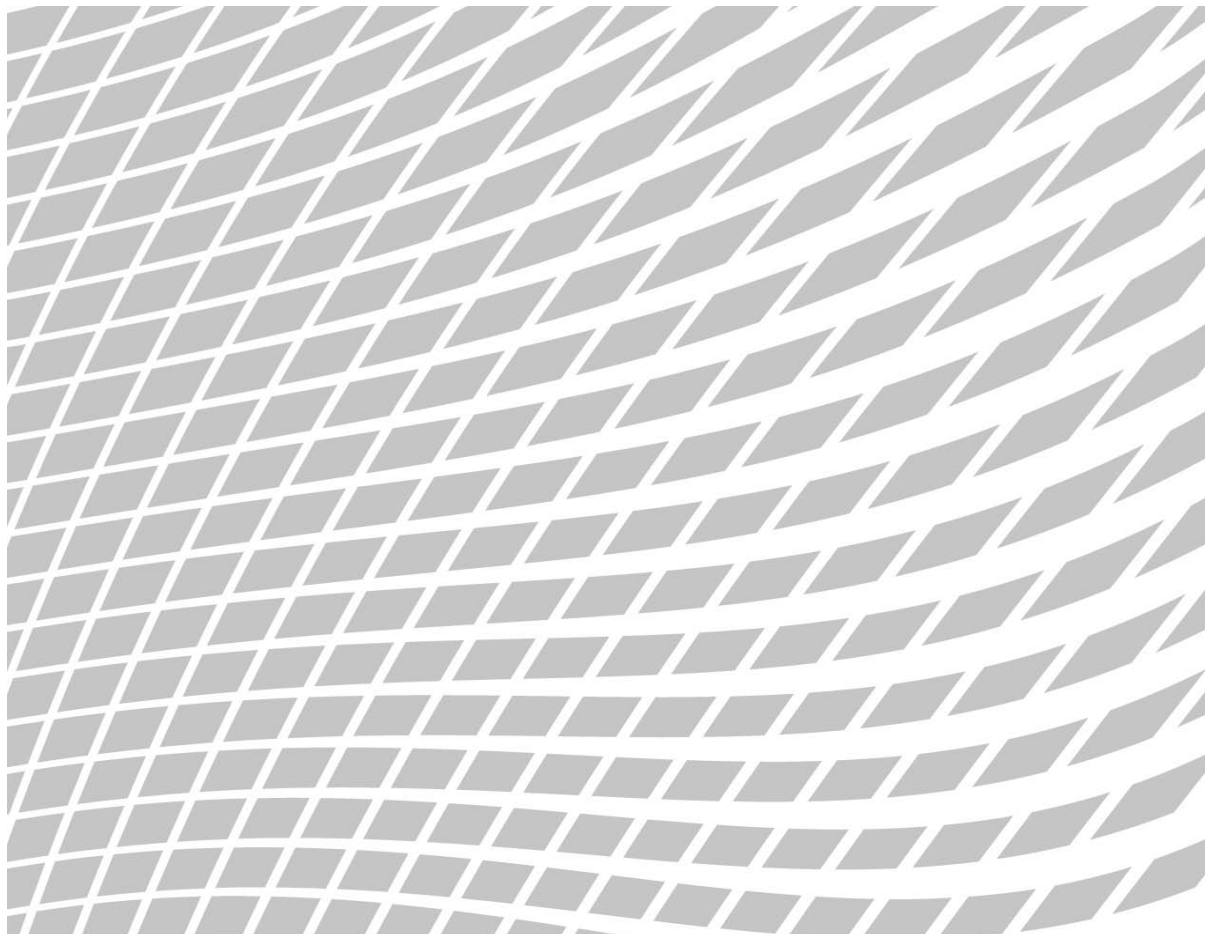


Marc Philippe Radice

FINMA Working Paper June/2010

Assessing the potential for systemic risks in the insurance sector

Considerations on insurance in Switzerland



Preliminary remarks

The assessments and findings presented in this report are those of the author. The fact that they appear in this series of FINMA publications does not necessarily imply that they are shared by FINMA.

This is a translation of the original German text which can be found at www.finma.ch [→]. This translation is provided for information purposes only. Translated excerpts are denoted by “(transl.)”. The footnote numbering corresponds to the original German text. As a result, footnotes 41 and 50 have become redundant.

Disclaimer

The Swiss Financial Market Supervisory Authority FINMA cannot accept liability for any information supplied in this Working Paper. On no account will any liability be accepted for loss or damage resulting from the use of such information. This disclaimer of liability applies in particular with regard to the topicality, accuracy, validity and availability of the information supplied in this Working Paper.

Copyright

Authors of FINMA Working Papers are responsible for the content of their contributions. Published works represent the authors' personal opinions which may not necessarily be shared by FINMA. All rights to the contributions are reserved by the authors. Users of this information and data are obliged to respect all existing copyrights and to obtain any permission to use the said information and data directly from the authors.

© 2010 Marc Philippe Radice, Bern.

Assessing the potential for systemic risks in the insurance sector Considerations on insurance in Switzerland

Marc Philippe Radice*

June 2010

Dr. Monica Mächler has refereed this working paper.

Abstract

The present contribution aims to develop an independent and differentiated view of systemic risks in the insurance sector, which can be brought into the ongoing national and international debates, and to complement the investigations conducted by the "too big to fail" Commission of Experts in Switzerland. The relevance of insurance to the real economy is sufficient reason to also examine this sector for systemic risks and, where necessary, to propose mitigation measures. Even if the insurance sector at large weathered the 2007-09 financial crisis rather well, it is appropriate to review the soundness of the insurance supervisory regime to mitigate potential negative externalities originating from insurance operations. The impact of the failure of a key insurance function or institution on the financial sector and the real economy in terms of shortage of capacity or other spillover effects are investigated by looking at seven qualitative scenarios. The existing supervisory regime supported by the traditional insurance business model proves to be fundamentally solid. No immediate systemic risks have been identified within insurance companies or legal entities regulated by the Swiss supervisory authority, and none of the institutions are considered too big to fail or too big to rescue for that matter. Yet, to improve the resilience of the insurance sector, regulatory requirements for the areas of liquidity, the reserving process and concentration risks need to be addressed. Furthermore, capital markets activities, leveraged investment and other refinancing activities should be subject to separate, business-specific regulation and supervision. The same applies to non-insurance activities. Likewise, internationally coordinated supervision of insurance groups and conglomerates ought to be advanced.

Keywords: systemic risks, insurance, supervision, regulation

JEL Classification: G01; G22; G23; G28; G33

* Marc Philippe Radice, FRM, Insurance, e-mail: marc.radice@finma.ch.

Table of contents

1	Introduction	9
1.1	Context	9
1.2	Exploring the issue in greater depth.....	11
1.3	Definition of terms used.....	12
1.3.1	Systemically relevant function	12
1.3.2	Systemically relevant institution.....	12
1.3.3	Systemic risk.....	12
1.3.4	Too big to fail	13
1.3.5	Too big to rescue	13
1.3.6	Overview	14
2	Criteria of systemic relevance.....	15
2.1	Size.....	15
2.2	Interconnectedness	15
2.3	Substitutability	16
2.3.1	Excursus on risk finance.....	17
2.4	Time.....	19
3	Particularities of insurance	21
3.1	Business model	21
3.1.1	Insurance premiums and benefits	21
3.1.2	Insurance policies and liabilities	22
3.1.3	Reinsurance.....	22
3.1.4	Pre-funding	24
3.1.5	Economic role	24
3.2	Regulation and supervision.....	25
3.2.1	Objective of supervision.....	25
3.2.2	Preconditions for orderly resolution	26

3.2.3	SST	26
3.2.4	Reinsurance.....	27
3.2.5	Liquidity.....	27
3.2.6	Risk accumulation control.....	28
3.3	Special measures.....	29
4	Investigations of systemic risks	31
4.1	Approach	31
4.2	Overview of scenarios	31
4.3	Non-life insurance scenarios.....	32
4.3.1	Loss of insurance capacity	32
4.4	Life insurance scenarios.....	34
4.4.1	Run on an insurer	34
4.5	Investment activity scenarios	37
4.5.1	Contagion through investments.....	37
4.6	Scenarios arising from capital markets activities	40
4.6.1	Default on credit default swap obligations	40
4.6.2	Default on leveraged investment programmes.....	42
4.7	Scenarios focusing on group structure.....	45
4.7.1	Default caused by limited fungibility of capital and liquidity.....	45
4.7.2	Non-insurance business	48
4.8	Other scenarios	50
4.9	Summary of scenario assessments	52
5	Conclusions	53
5.1	General findings	53
5.2	Measures regarding the insurance business model	54
5.2.1	Liquidity.....	55
5.2.2	Reserving process	55
5.2.3	Reinsurance.....	56
5.3	Measures regarding non-insurance business and capital markets activities	57

5.3.1	Non-insurance business	58
5.3.2	Capital markets activities	59
5.4	Measures regarding group structure	61
6	Bibliography	63
	Annexes.....	67
7	List of abbreviations	67
8	Case studies.....	71
8.1	ACE and XL Capital	71
8.2	Converium	71
8.3	Equitable Life.....	71
8.4	HIH	72
8.5	Lloyd's of London	72
8.6	Mannheimer	73
8.7	Nissan Mutual Life.....	74
9	Scenario Synopses	75

1 Introduction

1.1 Context

The public debate on systemic risks that surfaced in the banking sector during the recent financial crisis has also raised similar questions within the insurance sector. Based on the Washington Declaration by the G-20 nations [G20,1] and through the offices of the Financial Stability Board (FSB), all standard setters, including the International Association of Insurance Supervisors (IAIS), were charged with the task of addressing the issue of systemic risks. The IAIS submitted its initial thoughts on the issue to the FSB in the report "Systemic Risk and the Insurance Sector" [IAIS,1]. In Switzerland, the Commission of Experts on Limiting the Economic Risks Posed by Large Companies¹ [EFD,1] has included the insurance sector in its terms of reference. Jean-Claude Trichet, Chairman of the European Central Bank (ECB), clearly stated that in his opinion the huge investment volumes involved² mean that large insurance firms³ and pension funds count as systemically relevant companies [ECB,1].

The insurance sector's own view, expressed directly [SR,1] [ZFS,1] or through trade associations, such as the Comité Européen des Assurances (European Insurance Committee, CEA) and the Geneva Association [GA,1], is that traditional insurance business does not have the potential for systemic risks⁴. In particular, they argue that insurers have a business model that is fundamentally different from that of the banks. In the meantime, the Geneva Association concedes in its paper entitled "Systemic Risk in Insurance" [GA,2] that the potential for systemic risks is present in certain capital markets operations and refinancing activities, and that action should be taken by the private sector and the supervisory authorities. Similar conclusions are drawn by Professors J. David Cummins [CUMJ,1] and Scott E. Harrington [HARS,1]. Briefly, their studies conclude that traditional insurance business, whether non-life (property and casualty insurance) or life, does not pose a systemic risk, but that such risks arise as a result of undertakings in capital markets and not through insurer investment activities.

The importance of the insurance sector to the economy at large [LIEP,1] is in itself sufficient reason to examine this sector for systemic risks, despite the fact that the insurance sector came through the 2007-09 financial crisis relatively unscathed, with the exception of the American International Group (AIG), US monoliners⁵, and conglomerates, such as Fortis and Internationale Nederlanden Groep (ING). The insurance sector suffered mainly from spillover effects in the form of losses on its

¹ Hereinafter the Commission of Experts (in German: "Expertenkommission zur Limitierung von volkswirtschaftlichen Risiken durch Grossunternehmen").

² In terms of the EU alone: EUR 6,000 billion [ECB,1].

³ Hereinafter "insurers" will be used as an umbrella term covering insurance companies, insurance groups and insurance conglomerates, and "groups" to refer to both insurance groups and insurance conglomerates.

⁴ Cf. also The Group of Thirty [TGT,1], which focuses on reinsurance and the capital markets.

⁵ The term "monoliners" refers exclusively to US insurers, such as American Municipal Bond Assurance Corporation (AMBAC), Municipal Bond Insurance Association (MBIA), and the Dexia Group company, Financial Security Assurance (FSA), which were set up originally to insure municipal bonds against credit default and were thus active only in one line of insurance ("monoline"). However, they increasingly offered credit default policies for credit enhancement purposes, i.e. to improve the credit ratings of securitisation issues, including collateralised debt obligations (CDOs). Cf. for instance [AIG,1: Financial Services, p. 123] and [TAVJ,1: pp. 59—60, "SIV Lites: Doomed from the start"].

investments. At the outset, investments in mortgage-backed securities were affected, but, as the credit crisis spread, corporate bonds⁶ and instruments used to hedge them were also hit. A special case is AIG⁷, whose subsidiary, AIG Financial Products (AIGFP), was particularly exposed to the crisis due to its capital markets operations⁸. AIGFP's operations, combined with losses on positions in mortgage-backed securities, securities lending operations, and AIG's level of indebtedness resulted in a fatal outcome. The business strategy pursued by Swiss Re manifested certain similarities⁹, but when losses became evident, the reinsurance group was able to shift its strategy in time and secure the necessary support on the capital markets. Conglomerates, such as Fortis and ING, likewise ran into difficulties because of non-insurance business and capital markets operations¹⁰.

International studies of the systemic relevance of the insurance sector had already been embarked upon in the aftermath of the terrorist attacks of 11 September 2001. Back then, the focus was mainly on risk accumulations. The terrorist attacks themselves, the over-weighting of equities in a persistent bear market and the insolvencies of Enron and Worldcom led to dramatic capital erosion and uncertainty in the insurance sector, followed by shortfalls in non-life insurance cover, most notably for third-party liability risks in the aviation industry, for nuclear power plants and for risks relating to terrorism. In Switzerland, the issue should still be further investigated, although in 2000 the Zufferey Commission of Experts did address the subject of systemic risks in the finance sector, including insurance and its particularities, in its final report entitled "Finanzmarktregulierung und -aufsicht in der Schweiz" ("Financial Market Regulation and Supervision in Switzerland") [EFD,3].

The aim of this FINMA Working Paper is to develop an independent and differentiated view on potential systemic risks in the insurance sector, with special emphasis on Swiss insurance, for inclusion in the ongoing debates at both national and international level. This Working Paper is above all intended to supplement the investigations by the Commission of Experts.

⁶ Investment portfolios of life insurers were hit especially hard. In life insurance, investment portfolios are managed for yield, making corporate bonds and asset-backed securities (ABS) preferred investment instruments.

⁷ Cf. [HARS,1].

⁸ "The capital markets operations of AIG are conducted primarily through AIGFP, which engages as principal in standard and customised interest rate, currency, equity, commodity, energy and credit products with top-tier corporations, [...]" [AIG,1: p. 121]. Notably, credit default swaps (CDSs) and portfolio CDSs, which were often wrongly perceived as or taken for "insurance". Legally, a CDS does not constitute an insurance policy because it does not involve a transfer of risk, but rather the provision of security. In certain countries, insurers are forbidden by supervisory law from selling CDSs, i.e. acting as protection seller.

⁹ Swiss Re's capital markets activities are conducted largely by Swiss Re Financial Products, while those of Zurich Financial Services (ZFS) are carried out by Zurich Capital Markets, in run-off since 2003. Thus, ZFS relinquished the alternative risk transfer (ART) strategy pursued by CentreRe and Zurich Capital Markets, which were then engaged in such business as finite reinsurance and credit enhancement. When the dotcom bubble burst in 2001-02 and, soon afterwards, investment portfolio exposures to equities proved excessive, ZFS was forced to put up additional reserves: these factors constituted a risk accumulation that precluded further conduct of ART business.

¹⁰ In the Benelux countries, the convergence of banking and insurance (bancassurance) had progressed extensively before the crisis broke out.

1.2 Exploring the issue in greater depth

There is no disputing the real and monetary importance of the insurance sector¹¹ to the economy at large [LIEP,1]. To mitigate externalities, the sector is subject to extensive regulation [EFD,3: Annex 3 no. 11] [JF,1: pp. 5—6] [LIEP,1: p. 215]. However, it would be a mistake to think that economic importance automatically equates to systemic relevance and systemic risks. It would be equally wrong to take the specific case of AIG and draw conclusions for the entire insurance sector. On the other hand, too much significance should not be attached to the fact that insurers came through the 2007-09 financial crisis largely unscathed¹².

This Working Paper addresses the question as to whether systemic risks are discernible in the insurance sector. It does so first by looking at the various financial services (functions) provided by the insurance sector, and then by considering the importance of individual institutions and the sector as a whole. Full account is taken of the differences between the banking and insurance sectors to avoid the blurring of the distinction between the two sectors¹³ in respect of their significance and systemic relevance.

The need to consider systemic risks in the insurance sector is relevant to FINMA because, pursuant to Art. 5 of Switzerland's Financial Market Supervision Act (FINMASA), FINMA's objectives include protecting not only policyholders, but also market functions: "[...] protecting creditors, investors, and insured persons^{14, 15} as well as ensuring the proper functioning of the financial market." Other objectives, e.g. those pertaining to industrial policy or social policy, are beyond the remit of FINMA.

Systemic risks cannot be gauged by considering economic importance alone. Certain functions constitute a systemic risk even if they have little economic importance. Conversely, there are important functions that do not entail systemic risk¹⁶. Ideally, a function is important without posing a systemic

¹¹ 2008 key figures (some provisional) for Switzerland [EFD,6]: insurers and pension funds contribute to value creation in the Swiss economy amounting to approx. 4% of gross domestic product (GDP). The sector has a workforce numbering just under 50,000. Total investment volume is around CHF 1,100 billion, split roughly 50/50 between insurers and pension funds. The tax take from the sector is currently approx. CHF 550 million, comparable with approx. CHF 600 million contributed by the banking sector.

¹² Insurance company failures from other jurisdictions: Nissan Mutual Life (NML) and Heath International Holdings (HIH) Insurance. Cf. observations on NML and HIH in the annex.

¹³ With the split-up of ING, advocates of the convergence of the two sectors [BELA,1] have lost a flagship. By contrast, convergence between the insurance sector and the capital markets [WEF,1] – something the private sector is striving for, even though it will inevitably happen more slowly now – remains a trend of major significance. Cf. also [EFD,3: no. 312, p. 45].

¹⁴ This is not to say that insurance company failures must always be prevented by interventions required by insurance supervisory law. But, by constantly overseeing day-to-day operations, FINMA must ensure that no policyholders suffer detriment whenever insolvencies are imminent or have occurred. Cf. also [EFD,5].

¹⁵ Cf. also [EFD,3: Annex 3, no. 12]: Protection of policyholders by insurance supervisors, and [EFD,3: Annex 5, no. 2]: Protection of creditors by banking supervisors.

¹⁶ Investment banking is seen as systemically relevant. However, the economic importance of certain activities in investment banking is disputed, as in this statement by Adair Turner: "[...] some financial activities which proliferated over the last ten years were 'socially useless', and some parts of the system were swollen beyond their optimal size." [FSAUK,1]. Broadly speaking, the same question can be asked about certain lines of non-insurance business and capital markets operations in the insurance sector.

risk. For this to be the case, either the function by its very nature does not give rise to systemic risks, or the supervisory regime¹⁷ is adequate and effective.

The entire "too big to fail" issue is directly linked to the issue of systemic risks. If there is potential for systemic risks in the insurance sector, then the question of forced state intervention has to be addressed. A state guarantee for systemically relevant insurers may give rise to moral hazard, i.e. private sector reliance on bail-out by the state and the associated market distortions. It therefore needs to be considered whether such an unfavourable situation exists. Another crucial question for the supervisory authority is whether the governing laws, instruments and practice in Switzerland adequately ensure future stability in the insurance sector, even if the likelihood of insurance company failures is not entirely ruled out.

1.3 Definition of terms used

The terms used in this Working Paper are generally in line with those used in the interim report of the Commission of Experts [EFD,2], with due regard to the investigations of the FSB [FSB,1] and the IAIS [IAIS,1]. A brief definition of terms is outlined below.

1.3.1 Systemically relevant function

A systemically relevant function is a function (service or activity) which is of crucial importance to the national economy and which is generally indispensable. Within the context of the finance sector, the settlement system infrastructure is a clear example of a service that is indispensable to the wider economy.

1.3.2 Systemically relevant institution

A systemically relevant institution is an institution performing at least one systemically relevant function that cannot be replaced by other institutions within a time period acceptable to the national economy. The time required for the financial sector to put such a substitute in place thus determines the timeframe for a potential state intervention.

1.3.3 Systemic risk

A systemic risk is the risk that an event may lead to a loss of economic value and a loss of trust in the financial system, with considerable consequences for the real economy (spillover effects). A systemic risk manifests itself in systemically relevant functions or institutions.

The failure of a systemically relevant function or institution gives rise to negative externalities. This systemic risk is borne by the entire national economy or – more specifically – its taxpayers, and the compensation for assuming that risk is either inadequate or non-existent. In this way, risk costs are

¹⁷ The term "supervisory regime" is taken to mean regulation and supervision working in unison.

distorted and false incentives are given, not only to the company's management, but also to clients, staff, investors and counterparties.

1.3.4 Too big to fail

A systemically relevant institution is said to be too big to fail (TBTF) if the state is obliged to guarantee its survival and if the means available to adequately mitigate or remove systemic risks are insufficient, e.g. by separating important functions.

A systemically relevant institution is therefore not necessarily TBTF. Orderly resolution and adequate insolvency legislation can often mitigate or resolve the TBTF-related problems¹⁸. The precise parameters for this line of defence need to be set by supervisory law and regulatory measures.

1.3.5 Too big to rescue

A systemically relevant institution is too big to rescue (TBTR) if it is too big to fail and yet the required intervention would exceed the state's financial resources. Any attempt at rescuing the entity would force the state itself to run unbearable risks.

¹⁸ Cf., for instance, the observations on NML in the annex. NML was neither bailed out nor supported by the state, even though its importance as an insurer was undisputed and its policyholders were forced to bear one-third of the losses.

1.3.6 Overview

The following chart provides a schematic diagram of these terms and how they interact.

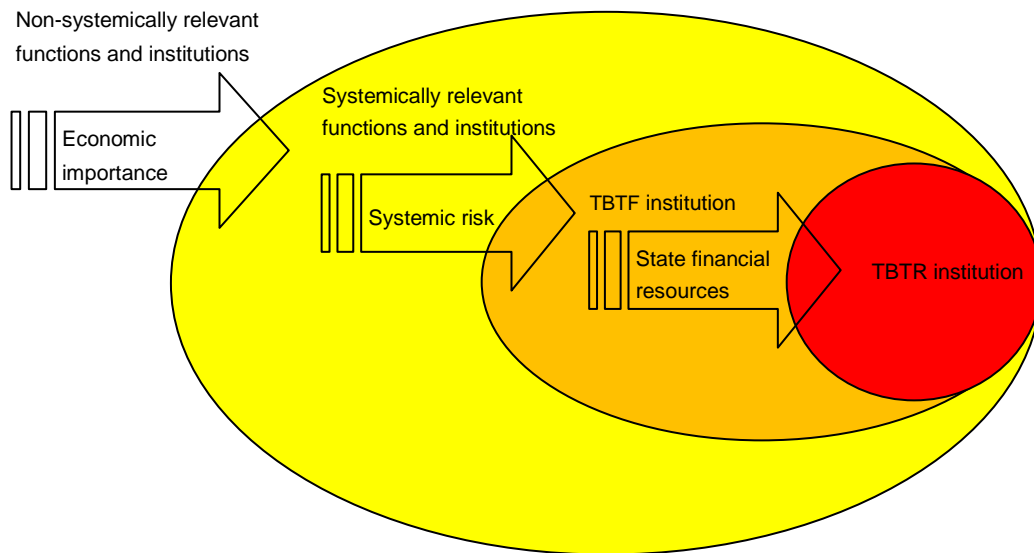


Fig. 1: Diagrammatic representation of the terms used

2 Criteria of systemic relevance

Determining the systemic relevance of insurance sector functions and institutions requires a set of criteria. The systemic relevance criteria applied to the insurance sector in this Working Paper are the same as those used in the banking sector, in accordance with FSB practice [FSB,1: s. III(B)]. However, consideration will also be given to the time criterion first proposed by the IAIS. This paper will therefore discuss the criteria of size, interconnectedness, (lack of) substitutability and time from the insurance viewpoint, taking the particularities of the sector into account.

2.1 Size

Size is a factor that needs to be defined according to the circumstances. Balance sheet size¹⁹, market share, market concentration, etc. can all be criteria worthy of consideration, but, as things stand in the insurance sector, they are neither unambiguous nor definitive measures by which to gauge systemic risks. Even loss given defaults are hardly appropriate as a measure of size. In any event, they are much lower in the insurance than in the banking sector. Large amounts of receivables can usually be recovered in the case of insurance insolvency as regulatory requirements stipulate the allocation of assets to cover technical provisions for the protection of policyholders²⁰. These offsetting assets serve a purpose similar to that of collateral in secured lending²¹. Opinions also differ on whether the number of policies, as a measure of size or concentration, can be used to make the size criterion more specific. There is little reason for using it on its own, since the average insured amount in a given line of insurance tends to be similar and the size of the balance sheet can stand for the number of policies, and vice versa.

2.2 Interconnectedness

The degree of interconnectedness of functions or of companies both within the financial sector and with the real economy is a potential manifestation of systemic relevance²². In the insurance sector, such terms of reference include investment portfolios, reinsurance, the level of indebtedness, non-insurance business and capital markets activities²³. These factors significantly increase the degree of

¹⁹ Balance sheets in the Swiss insurance sector are in a rough ratio of 1:10 compared with those of the Swiss banking sector. Swiss Re: approx. CHF 250 billion. ZFS: approx. CHF 350 billion.

²⁰ The insurance sector also makes use of reserves. Equalisation reserves which are not permitted under either IFRS or US GAAP, are a long-term form of reserve. It is interesting to note that Spain's central bank has introduced the mechanism of dynamic provisioning [SAUJ,1], a statutory deviation from IFRS, related to the idea of equalisation reserves, but with more emphasis on transparency. The aim is to encourage the financial stability of Spanish banks by means of a disclosed, anti-cyclical provision to manage the lending cycle.

²¹ Technical provisions diminish further the significance of the balance sheet as a measure of size. In principle, the balance sheet could be reduced by the insurance liabilities and offsetting assets. Except in special cases, the remaining size is negligible.

²² Cf. also [EFD,3: no. 312, p. 45] on interconnectedness in the banking sector and the insurance sector.

²³ Since Credit Suisse parted from Winterthur, there are no longer any financial groups in Switzerland engaging simultaneously in substantial banking and insurance activities, as is, or at least was, common in the Benelux countries. However, there are still a number of Swiss insurance groups with foreign or domestic banking operations (e.g. Baloise Insurance and ZFS).

interconnectedness and constitute potential weaknesses, especially with regard to activities outside the insurance sector's core business.

Reinsurance has the effect of redistributing risks within the insurance sector. While this redistribution is fundamentally based on adequate diversification of counterparty risks and monitoring of risk accumulations across individual business lines, reinsurance, at the same time, gives rise to interconnectedness within the insurance sector: this is why the financial strength requirements that primary insurers, reinsurers and retrocessionaires must meet are particularly demanding.

The investments of insurers and the volumes managed are another unavoidable source of interconnectedness. When structuring their investment portfolios, misallocations by insurers can give rise to risks. Yet, even without such misallocations, these investment portfolios are another channel by which systemic risks originating in the banking sector or on the capital markets can spread. The overallocation to equities in 2001-02 and the dependence on mortgage-backed securities in 2007-09 are two appropriate examples. In the case of mortgage-backed securities, it should also be remembered that the credit crisis widened to include corporate bonds and the instruments used to hedge them. Corporate bonds are an important asset class for insurers. When the capital markets move in the wrong direction, insurers can find themselves forced to rebalance their portfolios and dispose of investments, with the intention of avoiding losses as well as complying with investment guidelines and regulatory investment restrictions²⁴. Given the significant volumes under management, it is conceivable that such measures may reinforce or, in certain special circumstances, even trigger developments on the financial markets²⁵.

2.3 Substitutability

Compared to the banking sector, the possibilities for substituting insurance functions and insurers are many and varied. Two central factors here are the distinctive insurance business model and the differentiation between new and existing business made on a day-to-day basis and during a crisis.

In the case of existing business, the capital resources that the insurers are required to hold, the technical provisions and the offsetting assets, combined with supervisory law, serve to create the necessary conditions for orderly resolution (run-off²⁶). Even in exceptional cases²⁷, e.g. in the event of fraud or persistently unfavourable market conditions, orderly resolution proves to be a workable solution. Although a portfolio transfer²⁸, company takeover or another private sector solution is generally preferable to an orderly resolution, the important point is that this solution exists and mitigates, or even resolves a potential lack of substitutability in respect of existing business. Thus, the issue of substitutability needs to be addressed only with regard to new business.

²⁴ Allocations or concentrations of asset classes and instruments prescribed by law, where applicable.

²⁵ E.g. fire sales. Cf. equity crisis of 2001-02.

²⁶ Uniquely in the finance sector: run-off or discontinued business operates as a distinct line of business [SR,2]. This is pointed out to draw attention to the legal validity of resolution procedures in insurance practice.

²⁷ Cf. observations on HIH and NML in the annex.

²⁸ In most jurisdictions, provision is made for voluntary or compulsory transfer of an insurance portfolio to a different insurer.

An insurer may withdraw of its own accord or find itself obliged by circumstance to withdraw temporarily or permanently from a branch or line of business. As a rule, this is unproblematic, since an insured person or firm can substitute the existing insurance policy with another insurer. Apart from compulsory insurance, freedom of contract applies. Furthermore, except in certain cases, insurers are under no obligation to offer insurance services.

Should the whole insurance sector or significant parts thereof choose or be forced to abandon a branch or line of business, whether temporarily or permanently²⁹, this would be a more critical situation than in the case of individual insurers. Portfolio transfers or rescue solutions within the insurance sector would become extremely difficult to arrange. In addition, new policies could not be agreed with different insurers, and freedom of contract would become void.

If substitution generally is not possible, the options to be considered until insurance capacity is restored include both the 100% retention of risks and possibly its funding (risk finance), and, in certain circumstances, some form of state-provided deficiency suretyship. In the private sector, insurance terms and conditions in general, and premiums in particular, tend to undergo favourable developments following a cover shortfall compared with the situation beforehand. Since there are few barriers to entry into the insurance market³⁰, especially with regard to reinsurance and insurance of large risks, opportunities arise for free capital. These approaches are designed to keep insurance functions working rather than keep individual companies afloat.

2.3.1 Excursus on risk finance

Self-insurance is essentially insurance in its original form, dating back to before the advent of professional insurance firms. With the development of alternative risk transfer (ART) solutions in the 1970s and their rise to prominence in the late 1990s, new forms of risk finance were devised and established³¹ forms were formalised.

Christopher L. Culp describes risk finance as follows: "[...] risk finance is the process by which a firm tries to ensure that it has the adequate funds to survive a large unexpected financial loss arising from a risk that the firm has deliberately retained. Pre-loss risk finance represents funds that have been set prior to the loss, and post-loss risk financing arrangements are funds that are raised after a loss – but on pre-loss terms – to help a firm weather the cash consequences of the loss." [CULC,1: ch. 7, p. 122].

²⁹ To date, no permanent withdrawals of this kind have taken place.

³⁰ Barriers to market entry are diminished primarily through opportunistic management in certain lines of business, such as non-life reinsurance and the lenient requirements for start-up capital. In Switzerland, depending on the line of business, the start-up capital required is between CHF 3 million and CHF 20 million. Cf. Art. 8 para. 1 ISA. In Bermuda, the minimum start-up capital is a mere USD 120,000 for non-life insurance, USD 250,000 life insurance, and USD 370,000 (by simple addition) for composite insurance; e.g. [→] (status: 3 May 2010).

³¹ Self-insurance with or without a captive. Referring to the 1970s: "As insurance markets hardened and produced rising premiums and declining capacity, corporations wanted to emphasise to insurers that they could often seek the protection they needed through alternative means, the most obvious of which was self-insurance." [CULC,1: ch. 23, p. 524].

At its most basic, risk finance involves forming loss reserves. Available cash from the company's free cash flow is set aside as a reserve to cover a potential future loss event. If the loss event does not occur, the loss reserves can be either unwound into the free cash flow or kept for a future loss event.

The norm is to refinance a 100% retention. A company can try to raise cash even after the loss event, i.e. on post-loss terms, but, by then, the prevailing market conditions will be extremely uncertain. The funding should take the form of risk capital raised on the capital markets, e.g. by means of a debt issue or a credit facility. Where possible, companies should preferably take part in any industry pool, particularly to provide proof that the loss reserves thus financed are set aside for the appropriate purpose³². Adequate alternatives to industry pools are insurance captives³³ and the formation of insurance mutuals.

The US property and casualty insurance crisis of 1985-86 is illustrative. Insurers underestimated asbestos, pollution and health hazards (APH), and, in particular, the long-term asbestos risks in their underwriting and reserving processes. The insurance sector was forced to put up substantial additional reserves and this led, almost overnight, to a cover shortfall in US industrial liability insurance (new business) lasting several years. Corporations financed their own risks for a year or so and then set up insurance mutuals, to which they ceded their liability and indemnity risks, including all new APH business. The subsequent sale of these co-operatives gave rise to now-familiar names, such as ACE and XL Capital³⁴. The advantage in setting up such co-operatives is that they are normally free of legacies³⁵ and, in their start-up phase, benefit from favourable market conditions³⁶ that help them to rapidly achieve critical mass.

In principle, risk finance is always available as a substitution mechanism in institutional business. Yet it is not a goal to aspire to, because a return to broad and extensive risk finance would have consequences for the wider economy³⁷. Risk finance is less, or not appropriate at all, in the case of personal and compulsory forms of insurance, such as health insurance or pension schemes. In these areas, the state must, in extremis, step in as a fall-back to provide insurance cover, but without saving the failed companies³⁸; in parallel, their existing business must undergo orderly resolution or be taken over.

³² The credibility issue of the so-called "cookie jars" is discussed at length in [CULC,1: pp. 131—132]. The concern is the ultimate purpose for which the reserves that have been set aside are used, i.e. whether they are demonstrably committed to the funding of a specific loss event.

³³ In the case of protected cell companies, provision is made for a legal segregation of portfolios by client relationship, which is preferable in the resolution context.

³⁴ Cf. observations on ACE and XL Capital in the annex.

³⁵ These insurers begin with a clean insurance book. However, this was not the case when Converium was formed; cf. observations on Converium in the annex.

³⁶ Cover can be offered on advantageous terms: insurance conditions and especially price.

³⁷ Cf. also: "Disappearance of the entire sector would be tragic but sustainable." [CUMJ,1], although this particular statement refers specifically to life insurance in the USA.

³⁸ The pros and cons of compulsory health insurance as a private sector or state solution offer rich scope for discussion and debate. What is clear though is that, from a systemic risk perspective, the line between these options is blurred.

Risk finance is a wide-ranging subject, and a full analysis is beyond the scope of this Working Paper. In relation to systemic risks in the insurance sector, however, the important point is that this backstop mechanism exists.

2.4 Time

In its report, "Systemic Risk and the Insurance Sector" [IAIS,1: s. 2], the IAIS proposes that time be considered as an additional criterion. Time proves to be an important differentiating factor between the banking and insurance sectors.

The IAIS proposal takes account of the build-up of threats over time: "In the insurance sector, the time horizon plays a relevant role, for systemic problems tend to emerge over a longer time horizon than for banking. While banking failures may arise in a matter of hours or days, insurance failures usually take months or years, although loss of insurance capacity could emerge in weeks, if insurers or reinsurers cease offering cover after serious problems are discovered." [IAIS,1: s. 25]. The observation by the IAIS regarding the time required before an event occurs is pertinent. It is particularly applicable to latent claims, such as those relating to asbestos exposure, environmental pollution and other health hazards as well as workers' compensation, the so-called APH-business.

Another point to consider is how long the failure of a function or institution is bearable: negative externalities are unavoidable if the time required by the finance sector or the real economy to arrange a solution is longer than the period for which the disruption of a function or institution is bearable.

Hence, time is an important factor in terms of both the materialisation of systemic risks and the resilience of functions and institutions to those risks. If time is friend rather than foe, it will be possible to disentangle and substitute functions and, where necessary, institutions. So the criteria of interconnectedness and substitutability must be considered in respect of their time dimension.

Such windows of time will be of variable length. In the banking sector, the time-frame in which to cope with a disruption of systemically relevant functions tends towards zero. In the insurance sector, the opposite is fundamentally true [EFD,3: Annex 5 no. 3] [LIEP,1: p. 216]: barring a few exceptions, the insurance sector can, as a rule, weather the effects of a crisis, since insurance liabilities are paid out over longer periods of time³⁹. It is precisely this time window that in fact gives insurers, or the supervisory authorities, the chance to intervene in the run-up to a crisis, e.g. by detecting a company's deteriorating solvency, and put the necessary measures in place.

³⁹ Cf. observations on Mannheimer and NML in the annex. Both insurance companies were temporarily insolvent [LIEP,1: p. 216], but now, following a run-off period, re-enter the market, albeit under a new company name.

3 Particularities of insurance

It is noteworthy that the insurance sector differs both in its business model⁴⁰ and its supervisory regime. Since the review of financial market stability has been widened to include all financial institutions, the differences between the banking and insurance sectors must be taken into account to avoid drawing false conclusions about the insurance sector.

3.1 Business model

3.1.1 Insurance premiums and benefits

Clients pay premiums⁴¹ in exchange for the insurance afforded by policies they take out, while insurance benefits are only paid out in the event that a contractually defined insured loss or damage⁴² demonstrably materialises. Since benefits need not be paid out on demand, but rather are payable upon occurrence of the insured event, the premises for a run on an insurer have to be assessed differently than for a run on a bank^{43, 44, 45}. In property and casualty insurance, a run cannot happen because the settlement of a liability is absolutely conditional on the occurrence of an insured loss. In life insurance, a run is conceivable in that provision is made for policy surrender; nevertheless, such form of termination has always been subject to substantial contractual penalties⁴⁶.

Unlike in other sectors, where the price of a product or service is usually known when the contract is closed, in insurance the actual costs over time cannot be known until a claim has been fully processed^{47, 48}. Insurance premiums are calculated using actuarial methods or simulations which account for the underlying risks⁴⁹. The pricing and calculation of the best estimates of liabilities⁵⁰ inevitably involve valuation and model risk: the benefits actually paid out will differ from those anticipated. Part of the reason for imposing capital requirements on insurers is to absorb these discrepancies.

⁴⁰ Cf. generally [LIEP,1] and [EFD,3: Annex 5 no. 1—3].

⁴¹ This footnote is redundant. See preliminary remarks.

⁴² Property insurance: loss or damage. Life insurance: endowment maturity (survival), death, policy expiry, or policy surrender.

⁴³ Cf. also [LIEP,1: p. 216] [EFD,3: Annex 5 no. 2].

⁴⁴ Asset-liability management (ALM) differs accordingly. In traditional insurance, refinancing is achieved primarily through premiums. This means that ALM is essentially liability-driven.

⁴⁵ Insurers' accounting practices follow the same principle: entitlements to benefits under insurance policies must be sufficiently well specified to be shown as outstanding claims.

⁴⁶ E.g. discounts on surrender values.

⁴⁷ Exceptions exist for alternative risk transfer (ART) solutions.

⁴⁸ This has coined the term "inverted production cycle".

⁴⁹ Experience-based or exposure-based underwriting.

⁵⁰ This footnote is redundant. See preliminary remarks.

3.1.2 Insurance policies and liabilities

In concluding an insurance policy, the insurer undertakes to assume defined risks for the policyholder⁵¹. The policyholder always deals with the primary insurer⁵², regardless of any secondary cover provided by reinsurance, hedging (e.g. insurance loss warranty, ILW), or risk securitisation (e.g. insurance-linked security, ILS). Thus, the insurer's liability to its policyholders inevitably shapes the risk culture.

The insurance sector is not based on an originate-to-distribute strategy⁵³. The business model essentially compares to an originate-to-hold strategy in which reinsurance, hedging and risk securitisation are understood as a means of capital relief [CULC,1: p. 487]⁵⁴ [SR,3], since the assumed insurance liabilities are contractually non-transferable. In economic terms, the securitisation of insurance risks is equivalent to the hedging or reinsurance of those risks, except for the basis and counterparty risks involved. Similarities between ILS and ABS should not draw attention from the fundamental differences that exist between the underlying business models and types of contract⁵⁵.

There is no centralised processing of either insurance or reinsurance policies of a kind provided by a clearing house or an exchange. In contractual terms, policies are most akin to over-the-counter securities trading. However, the volume and frequency of transactions do not bear comparison with trading on the interbank and capital markets.

3.1.3 Reinsurance

Risks within the insurance sector are redistributed by reinsurance. In so doing, reinsurance leads to interconnectedness within the sector. Accordingly, reinsurance is regulated and subject to supervision, and requirements for the financial strength of reinsurers driven by primary insurers, other reinsurers (in retrocession), and rating agencies are particularly stringent.

Whereas relations on the interbank market are played out among numerous involved parties, the pattern of relations in the insurance sector is that of a largely hierarchical network. Redistribution takes the form of a diversification of risks, partly as required by supervisory law, at the primary insurance level, and a controlled concentration of risks at the reinsurance level. The control of risk accumulations across lines of business is central to both insurers and reinsurers. This hierarchical and controlled

⁵¹ Cf. also insurable interest [CULC,1: pp. 138—139].

⁵² With the exception of so-called cut-through clauses, which may be contractually agreed between an insurer and reinsurers to the benefit of policyholders. Such clauses are unusual, since the occurrence of an insured event can give rise to claims against the reinsurer on the part of both the policyholder and the primary insurer. Cut-through clauses also do not appear in securitisations of insurance risk.

⁵³ The securitisation strategy of certain insurers is sometimes erroneously described as originate-to-distribute, because it is inspired by the banking sector. ZFS uses the more appropriate term "originate-to-securitise" [WEMD,1]. However, securitisation cannot be an end in itself; cf. the experience with mortgage-backed securities (MBSs) during the financial crisis of 2007-09, in particular the decrease in underwriting discipline.

⁵⁴ "The goal is not raising funds for the sponsor, but rather managing risk." [CULC,1: p. 487].

⁵⁵ It is for this reason that these instruments are called insurance-linked securities, rather than "asset-backed securities" (ABS) or "insurance-backed securities". It should be noted that the term "insurance-backed securities" is not used. The acquirer has no right of recourse against the insurer.

trade-off between diversification and concentration of risks at the global level represents the core business and expertise of reinsurance and, at the same time, a considerable weakness in the event of misjudgements.

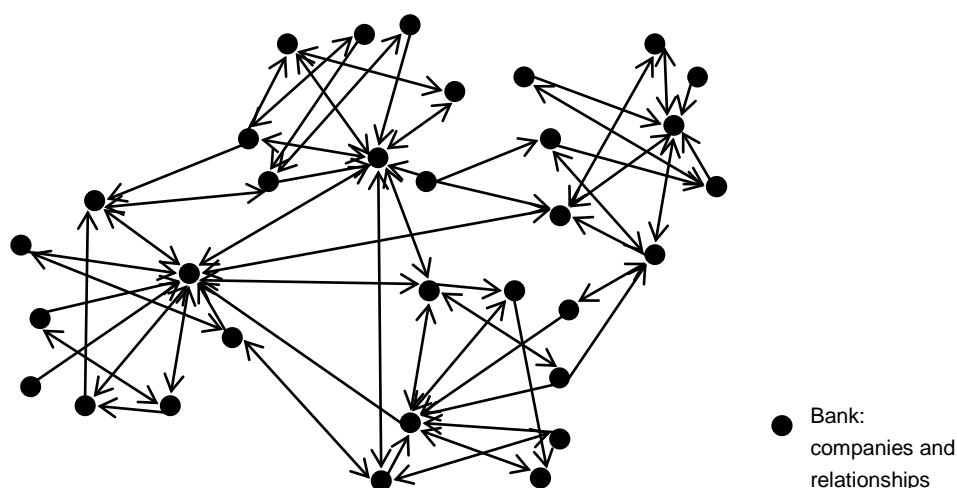


Fig. 2: Illustration of interconnectedness in the banking sector

However, reinsurance can also produce unwanted entanglements by means of nested retrocessions. A retrocession spiral arises when a reinsurance company unknowingly underwrites business it has itself previously retroceded: the initially retroceded business finds its way back into the books - unidentified. In such settings, as exemplified by Lloyd's of London in the early 1990s⁵⁶, the control of risk accumulations has clearly failed. Entanglements and spirals are dangerous: they form without the knowledge of the reinsurance company and are thus not revealed until claims are assessed and settled. Mitigation is provided by the articulated and publicly disclosed retrocession policies of the professional reinsurance companies⁵⁷, by the fact that participation in the risk is reduced as it is retroceded, and by the time that companies have to react to crises and weather them out.

⁵⁶ Cf. observations on Lloyd's of London in the annex.

⁵⁷ According to their retrocession policy, the major reinsurers, in particular, are net writers rather than cedents in the retrocession business.

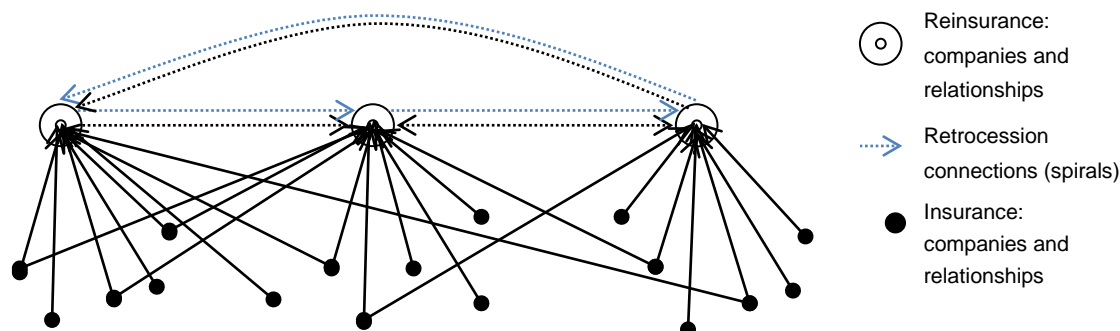


Fig. 3: Illustration of interconnectedness in the insurance sector

Primary insurance groups often concentrate their reinsurance cover by means of intra-group transactions. From the group's point of view, this approach makes for more efficient management. It concentrates risks within the group, while also allowing for global control of its reinsurance.

3.1.4 Pre-funding

One beneficial aspect of pre-funding in the insurance sector has so far been reviewed: the upfront payment of premiums by policyholders. Another notable pre-funding, which works in the opposite direction, is observed in the sector⁵⁸, e.g. when insurers acquire business involving commissions. This is especially true of life policies⁵⁹. Reinsurance of this business therefore causes leverage on the market and credit risk, working in the opposite direction⁶⁰. If a group policy is terminated prematurely, the business may not be cost-covering for the reinsurer and potentially also not for the insurer.

3.1.5 Economic role

From an economic standpoint, the insurance sector is often seen as a source of stability for the finance sector and the economy as a whole. This stems from its business model, the sector's ability to weather certain crises and their effects⁶¹, and the investment volumes⁶² generally managed for the long-term.

⁵⁸ "In some cases, the insurance coverage is a precondition for other businesses to operate." [LIEP, 1: p. 215]. Pre-funding is one such precondition. The example cited refers to industrial third-party liability, specifically in aviation. Another quote is "Insurance thus helps to provide more working capital to an economy because people do not have to protect themselves [...]" [LIEP, 1: p. 217].

⁵⁹ Generally, compensation as part of the first-year premium of life insurance policies.

⁶⁰ Normally, credit risk is considered solely from the perspective of primary insurers exposed to counterparty risks in reinsurance. Considering the pre-funding function, it becomes clear that reinsurers are also exposed to credit risk.

⁶¹ Cf. buffer function in [LIEP, 1: p. 216].

⁶² Cf. also [ECB, 1].

These characteristics must not be exploited by the banking sector or the authorities, central banks, supervisors or politicians, in an attempt to offset manifesting negative externalities spilling over from the banking sector onto the insurance sector in what may qualify as a sector arbitrage^{63, 64}. This would have the effect of lessening the resilience of the finance sector as a whole, in particular during crises, when this shock absorbing capacity is most needed. The consequences would be costlier externalities and an accelerated and intensified knock-on effect on the real economy.

3.2 Regulation and supervision

3.2.1 Objective of supervision

The foremost objective of the prudential⁶⁵ insurance supervisory regime in Switzerland is to protect the policyholders [EFD,3: Annex 3 no.12]. The supervisory regime does not concern itself with shareholder protection. This is reflected in the importance given to technical provisions, in the existence of tied assets where prescribed by law, in adequate capitalisation, and more generally in the sector's risk culture⁶⁶. Yet, it would be unrealistic to assume that any supervisory regime could preclude every conceivable risk.

The impact of the supervisory regime, both generally and in advance of a looming crisis, should be preventive. Once a crisis breaks out, the regime should work to curtail it and, in emergencies, facilitate as orderly a resolution as possible, with a view to protecting functions (services or activities) not institutions. FINMA has a duty to ensure that no policyholders incur loss or damage, even in the case of an insurer's insolvency; however it has no obligation to protect the insurers from their insolvency⁶⁷. Provided that functions are protected, there is no reason for the state to give either implicit or explicit guarantees in favour of insurers, and therefore the issue of moral hazard⁶⁸ does not arise.

⁶³ The expansion of US monoliners into the credit enhancement of securitisations should be understood as regulatory arbitrage between the banking and insurance sectors. Cf. also "[...] for the purpose of providing them with regulatory capital relief rather than risk mitigation." [AIG,1: Financial Services, p. 122]. Admittedly, all the companies involved benefitted from this opportunity for a while. But the result was a much more interconnected financial sector; at the same time, the inadequate capital requirements for insurers engaging in this business were exploited.

⁶⁴ Cf. also [JF,1: p. 6]: "As a general and overarching matter, the Joint Forum believes that there is room for greater consistency among each sector's core principles, as well as the standards and rules applied to similar activities conducted in different sectors. Such improvements would reduce opportunities for regulatory arbitrage and contribute to greater efficiency and stability in the global financial system."

⁶⁵ Cf. definition in [EFD,4: no. 2]. However, it should be noted that the existing supervisory measures in Switzerland are aimed at individual institutions rather than the financial centre as a whole.

⁶⁶ Cf. [JF,1: pp. 5—6].

⁶⁷ Cf. Paul Volcker's view, regardless of whether the state acts directly or indirectly through an established or yet-to-be-established authority: "The agency would assume control for the sole purpose of arranging an orderly liquidation or merger. Limited funds would be made available to maintain continuity of operations while preparing for the demise of the organization." [VOLP,1]. Although this approach is less than perfect, as exemplified by the failure of HIH (cf. observations on HIH in the annex), as a way of avoiding market distortions, it is clearly preferable to bailing out the institution.

⁶⁸ Cf. also [EFD,3: Annex 1 no. 4 and Annex 2 no. 11].

3.2.2 Preconditions for orderly resolution

Technical provisions, tied assets where prescribed by law, and the capitalisation⁶⁹ of Swiss insurers establish the right preconditions for orderly resolution⁷⁰, both in theory and in historical practice to date. These preconditions are inherently reinforced by the particularities of the insurance business model. Regulatory requirements stipulate determining technical provisions and allocating assets to cover them for the protection of policyholders⁷¹. Primary insurers are also subject to requirements regarding tied assets⁷². In addition, capital is held in reserve, in particular for unexpected events. Minimum capital requirements are laid down in Solvency I and the Swiss Solvency Test (SST).

Orderly resolution can be carried out in the private sector or with the intervention of the state, e.g. the competent authorities. Private sector solutions are preferable, since this upholds the reputation of the insurance sector. Such solutions may involve the takeover of a failed insurer or its problem portfolio (portfolio transfer) by a sound insurance company⁷³ or a dedicated receiving company⁷⁴.

3.2.3 SST

The Swiss Solvency Test (SST)⁷⁵ reinforces the supervisory regime in the following respects. All positions, both on- and off-balance-sheet, are accounted for in the solvency calculation⁷⁶. When assessing the solvency of groups, intra-group transactions (IGTs)⁷⁷ are taken into account, as are the solvency requirements applicable to each legal entity or each cluster of legal entities. Thus off-balance-sheet constructs are not only taken into account, they are treated like any other position. This precludes repetition of one of the shortcomings of Basel II, where the scale of off-balance-sheet positions consisting of special-purpose entities⁷⁸ for conduits, securitisations and other transactions was underestimated. Unlike the customary consolidation approach, the effects of all constructs aimed

⁶⁹ The level of capitalisation, conservative investment policies and the requirement for tied assets necessarily limit the achievable return on equity in the insurance sector. High capitalisation increases the denominator. Investment policies and requirements for tied assets curtail the insurer's investment freedom, which limits the numerator. Certain expectations of return on equity are then, at best, attainable only by deviating from traditional insurance.

⁷⁰ Insurance policy administration is not standardised, making a portfolio transfer a costly and time-consuming process in which IT systems and operational risks play a significant role.

⁷¹ Cf., for instance, FINMA Circular 08/43 "Provisions in Life Insurance" [[→](#)] and FINMA Circular 08/42 "Provisions in Non-Life Insurance" [[→](#)].

⁷² Cf. FINMA Circular 08/18 "Investment Guidelines for Insurers" [[→](#)].

⁷³ The options should ideally be examined ahead of any crisis. The same applies for whole company takeovers. Both traditional and ART solutions, such as a loss portfolio transfer (LPT), can be explored. In certain circumstances, an adverse development cover (ADC) is a viable alternative to a portfolio transfer.

⁷⁴ An example is Germany's Protektor Lebensversicherung [[→](#)]. Cf. observations on Mannheimer Lebensversicherung in the annex. In Switzerland, there is no such receiving company.

⁷⁵ Cf. FINMA Circular 08/44 "SST" [[→](#)].

⁷⁶ This distinction is de facto void in the SST context.

⁷⁷ Loans, guarantees, intra-group reinsurance and retrocession agreements, etc. Cf. on this point FINMA Circular 08/29 "Intra-Group Transactions in Insurance Groups" [[→](#)].

⁷⁸ Special purpose entities (SPEs) do not necessarily have to be consolidated: "Therefore, some SPEs are set up as 'orphan' companies with their shares settled on charitable trust and with professional directors provided by an administration company to ensure that there is no connection with the sponsor." [UN,1].

at capital gearing in insurance groups must be modelled, which limits the scope for stating undervalued risks or overvalued capital resources⁷⁹.

Each legal entity or cluster of legal entities within the group is tested for adequate capitalisation. This is especially important for orderly resolution at international level, even though, as things currently stand, adequate capitalisation of legal entities is not internationally enforceable. The approach thus goes some, but not all of the way towards providing a basis for an international, co-ordinated resolution scheme⁸⁰.

3.2.4 Reinsurance

Reinsurance is regulated⁸¹ and reinsurance companies are subject to insurance supervision. As part of the SST, all reinsurance companies supervised in Switzerland develop an internal model to account for the particularities and not least the complexity of the business. Accordingly, the requirements are demanding. Unlike for primary insurers, however, there are no requirements for tied assets. Swiss supervisory law does not provide for transfer of a reinsurance portfolio, but switching individual counterparties is envisaged. Furthermore, guarantees or commutations can be agreed contractually.

Safety mechanisms are incorporated to mitigate the interconnectedness caused by reinsurance. They are implemented by the parties – cedent or retrocessionaire and reinsurer – and encompass most notably the control of counterparty risks. They also affect the extent to which primary insurers can make allowance for reinsurance recoverables. The requirements imposed by reinsurers' own internal guidelines often go beyond those imposed by supervisory law. The ceding parties have an interest in constantly monitoring the creditworthiness of their reinsurance counterparties, since reliable access to the global reinsurance market⁸² is of considerable importance. This kind of intrinsic monitoring is one of the main factors that differentiates insurance from interbank business, in which relationships are far less structured⁸³.

3.2.5 Liquidity

In insurance regulation, liquidity risk⁸⁴ has so far been regarded as a matter of secondary relevance. Indeed, many insurance stakeholders have argued that liquidity risks are already taken into account,

⁷⁹ Applying the "deduction and aggregation method" set down in the Insurance Groups Directive (IGD) [EU,1] or the Financial Conglomerates Directive (FCD) [EU,2] to IFRS or US GAAP balance sheets produces results akin to those derived from the SST method.

⁸⁰ The SST is based on economic considerations. Presently, however, the worldwide norm is to assess solvency largely on the basis of Solvency I or other formulaic approaches. Hence, the SST provides only a partial solution to the fragmented international situation. In any event, capital repatriation, dividend payments and liquidity flows within groups are subject to approval by the supervisory authorities, even in times of no crises.

⁸¹ Claims that reinsurance business is not regulated are inaccurate: cf. Art. 2 para. 1 let. a (and para. 2 let. a) ISA or [EFD,3: Annex 3 no. 13].

⁸² Cf. also [EFD,3: Annex 5 no. 2] on reinsurance as a means of securing liquidity.

⁸³ Although the picture may be distorted by insurance groups that act as both primary insurers and reinsurers, the necessity (business model) and the requirements governing counterparty risks remain valid.

⁸⁴ Cf. liquidity [EFD,3: Annex 1 no. 4, p. 90]; it should be noted that the report was written in the period 1998–2000.

citing capitalisation levels, the requirements for technical provisions and, where prescribed by law, tied assets, and conservative asset management aimed at duration matching.

Yet it is misleading to equate capital and liquidity. Even if, at least conceptually, one aspect of solvency comprises the capacity of an insurer to pay claims as they fall due, an insurer can, under certain circumstances, have adequate capital resources, yet face liquidity issues or, vice versa, have sufficient liquid assets and still be insolvent. An integral view of solvency in insurance should therefore give due regard to both capital and liquidity and their interaction. It should be added that no capital buffer can be formed to cover liquidity risks: on the one hand, that very capital may consist of both liquid and illiquid assets, with liquidity driven by constantly changing market conditions, while on the other hand, liquidity must be monitored and managed in a timelier manner than capital. One must keep in mind that best estimates of liabilities are calculated according to actuarial methods or simulations and that the benefits actually paid out will differ from those anticipated. This is especially important if maturity mismatching of assets and liabilities is pursued with the intention to make a profit, let alone if maturity transformation is a cornerstone of the business model.

Since an unfavourable combination of factors can never be ruled out, sufficient capitalisation is therefore a fundamental requirement. However, capitalisation alone is no guarantee that the insurer will have adequate liquidity at all times, especially when acknowledging the relevance and complexity of corporate funding.

The liquidity of insurance groups is determined by their corporate structure. National supervisory law or other legal restrictions affect the fungibility of liquid funds. National regulatory requirements⁸⁵ can give rise to liquidity imbalances within the group. For instance, without any countermeasures, Anglo-Saxon legal entities will typically attract assets of greater liquidity with the managerial aim of optimising the group's overall regulatory profile. In such cases, it is uncertain whether the group or its parent company can tap into the liquid funds in due time, regardless of its overall capitalisation. The existence of a central treasury does not improve the fungibility of liquid funds within a group.

3.2.6 Risk accumulation control

In insurance, the interplay of risks, which manifests itself in risk accumulations⁸⁶, is a complex aspect of risk management. Insurers and, in particular, reinsurers are facing up to the need to model and monitor risk accumulations, but there are no regulatory requirements. Capital requirements are assumed to cover the manifestation of risk accumulations.

⁸⁵ E.g. concerning the quality of investments. The quality of investments (asset class and credit rating) is often used as a substitute for their liquidity. This is based on a number of false assumptions, as clearly shown in the 2007-09 financial crisis. Even first-class government bonds are not liquid in every situation.

⁸⁶ The subject of risk accumulations goes beyond that of risk concentrations. For example, a risk accumulation arises if a reinsurer reinsures both a freighter and its cargo (separate policies) and the freighter sinks. By contrast with the much studied interdependencies of financial market risks, the dynamics and the interplay of such insurance risks are much more difficult, if not impossible, to capture.

3.3 Special measures

FINMA may take measures⁸⁷ against insurers subject to its supervision if they no longer meet the legislative requirements. In the case of capacity shortages, it may resort to further reaching actions. Thus, FINMA can act on its own authority to protect policyholders⁸⁸.

There is, however, limited practical experience to rely on: since 1874, no policyholders have come to harm in Switzerland [EFD,3: Annex 3 no. 2]. There have been three cases of insolvency affecting healthcare insurers supervised by the Federal Office of Public Health (FOPH), and another one affecting Universale Rück. The Federal Office for Pensions and Insurance (FOPI), now integrated into FINMA, had no powers to intervene in reinsurance company insolvency proceedings. In addition, various capacity shortfalls were avoided by means of portfolio transfers⁸⁹. While limited practical experience may be seen positively and is to the credit of the supervisory regime, practice makes perfect⁹⁰. The table below gives a summary of the measures currently available to the supervisory authority.

⁸⁷ Cf. Art. 51 and 52 ISA.

⁸⁸ Cf. Art. 53–63 ISA. Orderly resolution is provided for in Art. 60 ISA.

⁸⁹ E.g. in 1992-93 FOPI arranged a compulsory portfolio transfer of all legal expense insurance policies taken out with La Défense Automobile et Sportive (D.A.S.) based in Geneva.

⁹⁰ By contrast, the Federal Deposit Insurance Corporation (FDIC) has dealt with 140 bank resolutions in 2009 alone.

Level	Crisis measures, by level of threat
0	<ul style="list-style-type: none"> • Supervision • Monitoring of technical provisions and, where prescribed by law, tied assets • Monitoring of solvency in accordance with Solvency I⁹¹ and SST⁹²
1	<ul style="list-style-type: none"> • Intensified supervision • Call for additional information, on-site reviews and audits
2	<ul style="list-style-type: none"> • Liquidity and capital secured, e.g. by prohibiting share repurchases and dividend distributions, making all transactions subject to approval; cf. Art. 57 ISA, and prohibiting repatriation of asset surpluses to foreign entities • Possible appointment of investigating agents pursuant to Art. 36 FINMASA • Blocking deposit accounts • Extraordinary allocation of ineligible assets to tied assets
3	<ul style="list-style-type: none"> • Derisking, especially securities lending and borrowing, alternative investments, etc. • Refinancing and capital increase measures • Separation or partial sale, especially of non-insurance operations • Transfer of tied assets to a special-purpose entity to insulate the assets from unauthorised access (e.g. protection clauses in takeover proceedings)
4	<ul style="list-style-type: none"> • Voluntary portfolio transfer pursuant to Art. 62 ISA • Possible restriction of powers: Art. 36 FINMASA and Art. 51 para. 2 let. c or f. ISA • Takeover initiated by the private sector or the supervisory authority
5	<ul style="list-style-type: none"> • Compulsory portfolio transfer pursuant to Art. 62 ISA • Possible restriction of powers: Art. 36 FINMASA and Art. 51 para. 2 let. c or f. ISA
6	<ul style="list-style-type: none"> • Liquidation following license withdrawal pursuant to Art. 61 ISA • Possible restriction of powers: Art. 36 FINMASA and Art. 51 para. 2 let. c or f. ISA • Ruling on procedure for policy terminations and their consequences; cf. Art. 36 IPA. In life insurance, Art. 55 ISA merits particular attention⁹³
7	<ul style="list-style-type: none"> • Insolvency: cf. Art. 53 para. 1 and Art. 54 para. 1 ISA and for tied assets Art. 17 ISA

⁹¹ Intervention levels: intensified supervision if the solvency margin (Solvency I) is below 150%, and restructuring if the solvency margin falls below 100%. Cf. also FINMA Circular 2008/30 "Solvency I Insurance Groups" [[→](#)].

⁹² The SST comes into full effect on 1 January 2011. Three intervention levels are envisaged based on the SST ratio (risk-bearing capital to target capital): 100%, 80% and 33%. Cf. Annex 4 to FINMA Circular 2008/44 "SST" [[→](#)]. The SST and, hence, the SST ratio are more sensitive than Solvency I to changes in the total balance sheet.

⁹³ Once insolvency proceedings have been opened, FINMA can rule out repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits. This is a way of avoiding imminent liquidity shortfalls in the event of an immediate payment of insurance liabilities.

4 Investigations of systemic risks

In the banking sector, FINMA and the SNB designated the following functions as systemically relevant: domestic lending, domestic deposit banking, investment banking, interbanking services and the financial market infrastructure. In principle, these functions do not concern the insurance sector. The systemically relevant functions of the insurance sector have yet to be identified. Unlike in banking, where a consensus has emerged in the course of the numerous reviews, opinions still differ in the insurance sector.

4.1 Approach

The insurance functions dealt with here were chosen on the basis of practical experience, the treatment of failed insurers and previous insurance crises. The functions are examined with the help of qualitative scenarios; notes in the annex explain how to read the scenario synopses. The investigations concentrate on core features: the emphasis is on the consequences and negative externalities rather than on their causes. In these analyses, an exhaustive identification of all the possible causes is not essential, since a variety of causes may result in similar consequences and measures, and can therefore be subsumed.

The investigations are concerned with the consequences, whether they may lead to negative externalities and, if so, under what circumstances. At all times, account is taken of the particularities of insurance with regard to its business model and its regulation and supervision, since these determine the resilience of insurance functions, institutions and the sector as a whole. The evaluation of the consequences and the measures is guided by practical experience. In the evaluations, each individual scenario is generally considered in isolation. Any proposed additions or changes to the supervisory regime are noted, by way of conclusion.

4.2 Overview of scenarios

The selected scenarios relate to the following situations:

- Loss of insurance capacity (§4.3.1). This scenario deals with the effects on the real economy of a reduction in or a loss of insurance capacity, understood as supply and extent of insurance cover, e.g. as a result of withdrawals from industrial liability insurance.
- Run on an insurer (§4.4.1). This scenario deals with the effects on the real economy of a run on a life insurance company, the resultant liquidity bottleneck, and the potential reduction in policyholder benefits in the event of insolvency.
- Contagion through investments (§4.5.1). This scenario deals with the effects of a contagion of the insurance sector through its investments and the resultant crisis expansion.
- Default on credit default swap obligations (§4.6.1). This scenario deals with the effects of a failure to pay or a default on credit default swap obligations entered into by the insurer as protection seller, including portfolio CDSs.

- Default on leveraged investment programmes (§4.6.2). This scenario deals with the effects of a default, or the stages leading to default, on leveraged, i.e. debt-financed, investment programmes.
- Default caused by limited fungibility of capital and liquidity (§4.7.1). This scenario deals with the effects of a default caused by the limited fungibility of capital or liquidity within an insurance group. This relates to the issue of capital or liquidity being in the wrong place at the wrong time, in particular if legal entities located in other jurisdictions are ring-fenced in order to protect local policyholders in a crisis.
- Non-insurance business (§4.7.2). This scenario deals with the effects of an impairment of the capital or liquidity of an insurance group driven by non-insurance business.

No scenarios are specifically examined in relation to composite insurance or reinsurance. An evaluation of the systemic risks arising in composite insurance can be derived from the scenarios relating to property and casualty insurance and life insurance, and those relating to group structure⁹⁴. Reinsurance has already been examined in some depth⁹⁵.

4.3 Non-life insurance scenarios

4.3.1 Loss of insurance capacity

4.3.1.1 Brief description

This scenario deals with the effects of a reduction in or loss of insurance capacity, understood as supply and extent of insurance cover provided to the real economy, e.g. as a result of withdrawals from industrial liability insurance.

4.3.1.2 Scenario

96	Causes	<ul style="list-style-type: none"> • Inaccurate assumptions in actuarial practice, underwriting and especially with regard to reserves, e.g. APH business, emerging risks such as nanotechnology, and inflation, in particular social or superimposed inflation • Changes in the legal framework, in particular in tort law⁹⁷, e.g. prescribed capitalisation rate and claims inflation
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> • Deficient tied assets, where prescribed by law • Inadequate solvency pursuant to Solvency I⁹⁸ • Inadequate solvency pursuant to SST⁹⁹

⁹⁴ Non-life (property and casualty) insurance and life insurance are normally provided by separate legal entities to comply with supervisory law.

⁹⁵ E.g. [SR,1] and also [TGT,1].

⁹⁶ Cf. annex for notes on the tables.

⁹⁷ Cf. [EFD,5: no. 2 and 5], and: "[...] unexpected legal changes present a fundamental problem when they affect the payout scheme" [LIEP,1: p. 214], which they almost inevitably do.

⁹⁸ E.g. by falling below the required solvency margin.

⁹⁹ E.g. determined by means of the SST ratio.

▼	Mitigation or remedy	<ul style="list-style-type: none"> Putting up additional reserves¹⁰⁰
▼	Consequences / negative externalities	Reduction in insurance capacity, understood as supply and extent of cover provided, up to and including total loss of capacity on the insurance market, e.g. withdrawal from industrial liability insurance
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> Continuation of existing policies, possibly in run-off Portfolio transfer of existing business Restructuring measures, e.g. capital increase
▼	Measures by affected clients	<ul style="list-style-type: none"> Replacement cover taken out with another insurer Risk financing of new risks, or formation of industry pools, insurance co-operatives or captives
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> Orderly resolution of existing business
▼	Evaluation	<ul style="list-style-type: none"> Systemic risk: none <ul style="list-style-type: none"> Resilience: high Probability of occurrence: medium Extent of damage: low
	Further supervisory requirements	<ul style="list-style-type: none"> Intensified supervision of the underwriting and reserving processes Liquidity requirements

4.3.1.3 Comments

An example of a capacity shortfall on the insurance market is the 1985-86 crisis in industrial liability insurance. Nevertheless, nuclear power plant insurance must be differentiated, since nuclear power plants are generally never fully insured, and the available cover is usually provided via insurance pools. The terrorist attacks on 11 September 2001 triggered a temporary capacity shortfall, in particular in industrial liability insurance for aviation and nuclear power plants, and in terrorism insurance. Even then, however, there were a number of opportunistic providers of liability cover for airlines, such as AIG and Berkshire Hathaway. In addition, some US Federal States stepped in to provide temporary back-up cover.

In this context, it is worth noting that certain insurance products test the limits of insurability, e.g. terrorism insurance, insurance of political risks or special lines, as offered on the Lloyd's of London market. Other insurance products, while sometimes certainly desirable, must be classified as convenience products, e.g. fidelity insurance, bankers' blanket bonds (BBBs) and, again, some of the

¹⁰⁰ A further, albeit unpopular mitigation may consist in carrying out selective cash flow underwriting in an attempt to restore liquidity via premium revenues and take advantage of time. Cash flow underwriting is problematical when it is forming an integral part of a company's insurance policy. After the experiences of the 1990s, the associated risks became plainly evident and cash flow underwriting was largely abandoned in this form.

Lloyd's of London special lines¹⁰¹. Such products are offered because conditions are favourable and capital surpluses can appropriately be deployed. These are not essential functions: they are dispensable and therefore also substitutable. In the event of a capacity shortfall, risk finance would be an adequate mitigation.

Other insurance products can be more tightly interwoven with the economy because of their design. In the case of umbrella covers, the components need to be considered individually. The aforementioned bankers' blanket bonds increase the level of interconnectedness with the banking sector. Cover offered by BBBs comprises fidelity, errors and omissions (E&O) and directors' and officers' (D&O) insurance. There is usually a capacity shortfall in this type of insurance when demand surges in the wake of a loss event¹⁰². The cover offered per policy is usually in the order of CHF 100 to 200 million. Such umbrella covers are not essential functions as they are dispensable. If need be, they can be substituted by their individual constituents or by risk finance.

The causes that may lead to difficulties and distress are many and varied. Inaccurate assumptions in underwriting and reserving are frequently to blame. Although rescue options are generally available, more can be done to mitigate the risks described above by intensifying supervision of the underwriting and reserving processes, and by introducing supervisory requirements for liquidity management.

4.4 Life insurance scenarios

4.4.1 Run on an insurer

4.4.1.1 Brief description

This scenario deals with the effects on the real economy of a run on a life insurance company, the resultant liquidity bottleneck, and the potential reduction in policyholder benefits in the event of insolvency.

4.4.1.2 Scenario

96	Causes	<ul style="list-style-type: none"> • Inaccurate assumptions in actuarial practice, especially with regard to underwriting • Adverse developments on the capital markets • Asset-liability mismanagement, especially with regard to interest rate risk on guaranteed or legally prescribed interest rates, embedded options and inflation • Insufficient hedging of variable annuities
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> • Inadequate technical provisions • Deficient tied assets, where prescribed by law • Inadequate solvency pursuant to Solvency I • Inadequate solvency pursuant to SST

¹⁰¹ Cf. insurance of body parts. From the viewpoint of individual policyholders, such as surgeons, artists or sportsmen and women, such insurance is valuable. From an economic viewpoint, this type of insurance is of negligible significance.

¹⁰² Such as following the Bernard Madoff fraud.

▼	Mitigation or remedy	<ul style="list-style-type: none"> Putting up additional reserves
▼	Consequences / negative externalities	Run on an insurance company, resultant liquidity bottleneck and potential reduction in policyholder benefits in the event of insolvency
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> Private sector solution, e.g. voluntary portfolio transfer Separation or partial sale Restructuring measures, e.g. capital increase
▼	Measures by affected clients	<ul style="list-style-type: none"> Replacement cover taken out with another insurer
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> Liquidity and capital secured pursuant to Art. 57 ISA, and prohibition of repatriation of asset surpluses to foreign entities Compulsory portfolio transfer Possible use of limited state funds to protect functions (orderly resolution) rather than institutions Once insolvency proceedings have been opened, pursuant to Art. 55 ISA, prohibition of repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits
▼	Evaluation	<ul style="list-style-type: none"> Systemic risk: none <ul style="list-style-type: none"> Resilience: medium Probability of occurrence: low Extent of damage: high
	Further supervisory requirements	<ul style="list-style-type: none"> Intensified supervision of the underwriting and reserving processes, with, in particular, expert actuarial review ALM requirements Liquidity requirements

4.4.1.3 Comments

Equitable Life, Mannheimer and Nissan Mutual Life (NML) all provide interesting case studies¹⁰³. In the cases of Equitable Life and NML, although a run on the companies could eventually be halted, policyholder benefits had to be reduced. The resolution procedures for both firms clearly involved negative externalities, yet in neither case did the state provide financial assistance. The negative externalities in question affected the narrow circle of policyholders and beneficiaries, rather than a broad part of the real economy. Thus, the state was not compelled to step in to safeguard financial stability. Moreover, there are indications that the supervisory authorities and, primarily, the executive boards of Equitable Life and NML failed to discharge their duties to the full: certainly, the requisite measures were not taken in due time. This illustrates the importance of rapid and resolute intervention by the authorities pursuant to appropriate statutory powers. In the case of Mannheimer, no policyholders incurred loss or damage. Although the implementation of the sought-after rescue by the private sector failed, the policies were successfully transferred to the receiving company Protektor.

¹⁰³ Cf. observations on Equitable Life, Mannheimer and NML in the annex.

In principle, this Working Paper is limited to considerations relating to financial market stability. However, discussion of the Equitable Life case justifies an excursus into social policy: if, in Switzerland, policyholders were to incur loss or damage, e.g. in the form of reductions in their benefits under life policies or especially in their pension benefits, social policy motives may nevertheless prompt the state to draw up a compensation scheme. Such a scheme may involve solutions, such as those envisaged under the LOB Guarantee Fund¹⁰⁴. This situation can surely be mitigated or remedied if prompt and appropriate action is taken in response to the warning signs (symptoms) and the requisite supervisory powers are in place.

Under current contractual conditions, policy surrenders entail costs and contractual penalties for the policyholders, which reduce the likelihood of a run on an insurer. The discounts applied to surrender values are significant and have a certain deterrent effect. Withdrawals from occupational and Pillar 3a pension provisions are subject to statutory conditions¹⁰⁵.

A portfolio transfer or orderly resolution can be arranged within the private sector or with intermediation by the state or the competent authorities. Given the current levels of concentration on the Swiss market, substitutability (freedom of contract, potential portfolio transfer or takeover) should be possible¹⁰⁶. A crisis can be managed without a dedicated receiving company, although confidence in the insurance sector may be further strengthened by the designation of such a company¹⁰⁷. In certain circumstances, orderly resolution is likely to receive support from the state or a designated authority in the form of limited funds¹⁰⁸, provided that only the function or, where applicable, the policyholders are being protected: FINMA has a duty to ensure that no policyholders incur loss or damage, even when insurers become insolvent; it does not have a duty though to protect the insurance companies themselves or their owners from insolvency.

Once insolvency proceedings have been opened, FINMA can, under Art. 55 ISA, rule out repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits. This is a way of avoiding imminent liquidity shortfalls in the event of an immediate payment of insurance liabilities. The measure prescribed by Art. 55 ISA serves as a last resort: although it can bring a run on an insurer to a halt, it undermines confidence in the life insurance sector.

The causes of such a run can be many and varied. Inaccurate assumptions in underwriting and reserving, and the mismanagement of assets and liabilities are frequently to blame. Generally, there are ways and means to halt a run and put a life insurer through orderly resolution. Nevertheless, more can be done to mitigate the risks described above by intensifying supervision of the underwriting and

¹⁰⁴ Cf. LOB Guarantee Fund [[→](#)].

¹⁰⁵ Relocation abroad, purchase of an owner-occupied property, a switch to self-employment, etc. With regard to unrestricted pension plans, insurance contributions generally have to be paid for three years before the policyholder is even allowed to withdraw from the plan.

¹⁰⁶ The combined market concentration of AXA Life and Swiss Life, taking the pension funds into consideration, is approx. 15-20%. This is not market dominance; excluding the pension funds, the concentration would be around 60%.

¹⁰⁷ Cf. Protektor in Germany, in the observations on Mannheimer in the annex. For banks, the FDIC in the USA plays a significant role. However, solutions involving a receiving company do involve additional costs.

¹⁰⁸ Cf. Paul Volcker: "The agency would assume control for the sole purpose of arranging an orderly liquidation or merger. Limited funds would be made available to maintain continuity of operations while preparing for the demise of the organization." [VOLP, 1]. This is what happened de facto in the case of HIH.

reserving processes, and by introducing supervisory requirements for ALM¹⁰⁹ and liquidity management.

4.5 Investment activity scenarios

4.5.1 Contagion through investments

4.5.1.1 Brief description

This scenario deals with the effects of a contagion of the insurance sector through its investments and the resultant crisis expansion.

4.5.1.2 Scenario

96	Causes	<ul style="list-style-type: none"> • Extraordinary asset value decreases of investments • Overallocation of portfolio assets to certain asset classes coinciding with upheavals on the financial markets • Expansion of a financial market crisis to asset classes needed by the insurance sector, especially also hedging instruments
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> • Deficient tied assets, where prescribed by law • Inadequate solvency pursuant to Solvency I, provided decreases in value are reflected in the investment positions¹¹⁰ • Inadequate solvency pursuant to SST
▼	Mitigation or remedy	<ul style="list-style-type: none"> • Derisking, rebalancing of portfolio structure • Provision of liquidity
▼	Consequences / negative externalities	Contagion of the insurance sector through investments and ongoing hedging operations, and the resultant crisis expansion
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> • Reallocation into risk-free asset classes, even cash, as appropriate • Redesign of hedging programmes • Restructuring measures, e.g. capital increase • Reduction in or even temporary withdrawal from insurance business • Portfolio transfer of existing business
▼	Measures by affected clients	<ul style="list-style-type: none"> • Replacement cover taken out with another insurer • Risk financing of new risks, or formation of industry pools, insurance co-operatives or captives
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> • Compulsory portfolio transfer • Orderly resolution of existing business • Possible use of limited state funds to protect functions (orderly resolution) and not institutions • Once insolvency proceedings have been opened, pursuant to Art. 55 ISA, prohibition of repurchase, pledging (as collateral), advance payment or, where applicable, payment of

¹⁰⁹ For the present purposes, hedging of variable annuities is also regarded as part of ALM.

¹¹⁰ Depending on the accounting standards applicable, e.g. IFRS and US GAAP.

		policyholder benefits
▼	Evaluation	<ul style="list-style-type: none"> • Systemic risk: in certain circumstances¹¹¹ <ul style="list-style-type: none"> – Resilience: low – Probability of occurrence: medium – Extent of damage: high
	Further supervisory requirements	<ul style="list-style-type: none"> • Liquidity requirements • Contagion scenarios and crisis planning

4.5.1.3 Comments

An overallocation to one or more asset classes in an investment portfolio at the onset of a financial crisis is an unfavourable starting position, especially if the crisis or its expansion affects those classes to which assets have been overallocated. Even at the best of times, extraordinary decreases in the value of investments pose an obvious risk in asset management, but when they occur in classes to which assets have been overallocated, they can immediately lead to risk accumulations. The time window for corrective measures is limited, if substantial losses are to be avoided. In the portfolio structuring process, overallocations can be identified in time and avoided if risks and especially risk concentrations¹¹² are managed adequately. Yet, they can also be the product of well-informed investment decisions. Overallocations take the form of concentrations in asset classes and in common risk factors. Liquidity is of special importance here, since it affects all asset classes, albeit to varying degrees. One of the purposes of investment guidelines¹¹³ is precisely to pre-empt or prevent misallocations.

The equity crisis of 2001-02 and the simultaneous, widespread overallocation to equities¹¹⁴ in the insurance sector amply illustrate the case. Looking back at the 2007-09 financial crisis, the allocations to mortgage-backed securities¹¹⁵ in the portfolios of some insurers may, in hindsight, also be classified as overallocations. Since their investment strategies were geared mainly, though not exclusively, to first-class mortgage-backed securities, insurers did generally not breach the investment guidelines and rules in force at the time, yet they neglected accumulating liquidity risks¹¹⁶. At the same time, irregularities were revealed: for instance, it subsequently became clear that issuer prospectuses or rating agency credit assessments misstated the risks involved in a number of investments insurers

¹¹¹ Although asset management in insurance is not a function (service) directly visible in the real economy, it does constitute a core component of the insurance business model. Its inevitably low resilience to external contagion poses an acute threat. In addition, whether the investments are managed by the insurer itself or by an asset manager charged with the task, is irrelevant.

¹¹² There is currently a certain concentration of real estate in the investment portfolios of individual Swiss insurers, notably in the life insurance sector.

¹¹³ Cf. FINMA Circular 08/18 "Investment Guidelines for Insurers" [[→](#)], inter alia on asset liquidity. They apply only to a limited extent to reinsurance companies and insurance groups.

¹¹⁴ Cf. ZFS and Mannheimer [MM,1] [MM,2].

¹¹⁵ Mortgage-backed securities (MBSs) used as an umbrella term for CMBSs, RMBSs, CMOs, etc.

¹¹⁶ Cf. AIG [HARS,1]. Concentrations of liquidity risks in investment portfolios, in AIGFP's activities and in securities lending and borrowing operations, to which extensive reliance on debt financing of its leveraged investment programmes must be added.

made, and fraud and collusion were uncovered in the underlying US mortgage business¹¹⁷. Yet, institutional investors may reasonably be expected to show the necessary professionalism and prudence when investing in complex securities, which ultimately entails confronting liquidity risks^{118, 119} or other less evident risks. At the same time, insurers are not responsible for the proper functioning of the capital markets on which they are dependent in their capacity as asset managers.

The fundamental issue is the transmission of risks by means of asset classes that are indispensable to insurance companies. Insurers are especially reliant on investments in fixed-income and often long-dated securities, bond and interest rate derivatives, and foreign currency instruments in order to offset long-term¹²⁰ technical provisions (liability-driven asset-liability matching). Because insurers are bound to be dependent on the capital markets and on banks, they cannot avoid developments on the financial markets. Moreover, the measures to mitigate adverse developments are few. Contagion from the financial markets is thus a real and tangible threat.

The use of derivatives to hedge asset and liability risks, and to manage investment portfolios efficiently assumes liquid markets at all times. The liquidity and volatility of the markets are key determinants of the supply and pricing of hedging instruments and, hence, of counterparty risks. This is especially true for dynamic hedging of variable annuities. The use of derivatives increases the insurance sector's dependence on capital markets and, with it, the threat of crisis contagion, while in all cases, leverage increases the intensity of contagion.

Even insurers that had not invested in US mortgage-backed securities were affected by the expanding financial crisis. Losses on corporate bonds were at the core of the issue. One response to any broad crisis on the capital markets is the reallocation of investments into risk-free asset classes. However, from an asset-liability management perspective, these instruments may also lead to misallocations, if the required returns can no longer be generated.

Moreover, risk-free can entail risks, e.g. sovereign debt, which is traditionally seen as the epitome of risk-free investment. As a result of the financial crisis and the bail-out measures, some G-20 nations have significantly increased their debt burden. The impact of a national debt crisis, such as in the USA, the UK or a member of the European Monetary Union, would be devastating, and more

¹¹⁷ Cf. cash-back transactions: "A common solution developed in which home buyers collude with sellers and intermediaries to inflate the price of the transaction ('cash-back transactions'). Since the lender sees a higher transaction price, he is willing to lend a larger mortgage (based on the same real-estate property). This way, the transaction can be completed and intermediaries can capture their fees." [BEND,1]. And, more generally on the financial crisis of 2007-09, see [NZZ,1].

¹¹⁸ Liquidity risks are repeatedly underestimated, e.g. the US savings & loan (S&L) crisis in the 1980s or the failure of the hedge fund Long-Term Capital Management (LTCM) in 1998. Cf. "Scholes averted the question of *why* 'academics and practitioners' had ignored the long-established and basically self-evident liquidity risks." [LOWR,1: p. 228].

¹¹⁹ The allowance for an illiquidity premium in the context of EU Solvency II without any countermeasures (such as liquidity requirements) seems questionable, even if it is advocated by the CFO and CRO forums and the CEA (cf. [CEA,1: no. II(2)]). Depending on the implementation, this may, on the one hand, distort the market-consistent valuation of insurance liabilities and, on the other hand, provide additional incentives for insurers to invest in illiquid instruments. Cf. [KELP,1] on this point.

¹²⁰ Given liability terms in life insurance, including longevity business, it is common not to find matching (physical) fixed-income securities on the financial markets. Above expected average terms of 15 to 30 years, other replication strategies must be applied.

fundamental considerations¹²¹ would take priority. A national debt crisis clearly poses a challenge to the insurance sector. As a somewhat unsatisfactory alternative to any affected government bonds, insurers may consider holding cash and confronting substantial basis risk¹²².

The insurance sector can hardly be blamed for overallocating to sovereign debt. Given the asset volumes it holds in government bonds, the insurance sector¹²³ would be severely affected by any crisis, but that does not render it the cause of this systemic risk. At best, the sector can take the necessary precautions and attempt to contain the further expansion of any financial or national debt crisis. However, since the precautionary measures are limited, the insurance sector constitutes another expansion channel for such crises. In fact, it seems realistic to expect these crises to intensify, and, consequentially, externalities to inflict higher costs on the real economy. Such issues need to be addressed at their source: on the capital markets, in the banking sector and, where applicable, in national financial policies.

While liquidity is relevant in insurance, its risks are still often neglected. The range of supervisory instruments should therefore be amended in a carefully targeted manner to incorporate liquidity requirements. Another option would be to conduct and monitor dedicated contagion scenarios¹²⁴ to ensure that insurers deal with the dangers of contagion and formulate appropriate crisis plans.

4.6 Scenarios arising from capital markets activities

4.6.1 Default on credit default swap obligations

4.6.1.1 Brief description

This scenario deals with the effects of a failure to pay or a default on credit default swap obligations entered into by the insurer as protection seller, including portfolio CDSs (PCDSs).

4.6.1.2 Scenario

96	Causes	<ul style="list-style-type: none"> • Financial market crisis with particular impact on credit risks, significant widening of CDS spreads • Inaccurate assumptions in modelling PCDS structures
----	--------	--

¹²¹ Although the insurance sector needs to envisage and confront such situations as well, avoiding a state bankruptcy ought to be the main objective. Emergency measures decided by the state will necessarily affect the insurance sector. However, it seems to be uneconomical to manage an insurance company on the basis of such extreme scenarios.

¹²² E.g. by means of mismatching durations and currencies. The incurred basis risk would translate into additional capital requirements in the SST. Investment and capital requirements in supervisory law restrict the investment options of insurers, whereas money market instruments do not generate the required returns.

¹²³ The assets under management in the insurance sector are substantial. In Switzerland, total investments including insurance receivables and other receivables amount to approx. CHF 470 billion, in comparison to a total balance sheet volume of approx. CHF 570 billion for entities registered in Switzerland. No breakdown by asset class was available for these figures.

¹²⁴ Given the complexity and variety of connections at work, the contagion scenarios will tend to be more qualitative in nature than the result of a quantitative calculation in the SST, although they would clearly benefit from a link-up with the SST.

▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> • Insufficient SST ratio: possible
▼	Mitigation or remedy	<ul style="list-style-type: none"> • Derisking • Posting of collateral • Provision of liquidity • Re-securitisation, e.g. synthetic CDO
▼	Consequences / negative externalities	Failure to pay or default on CDS obligations with spillover effects on counterparties, e.g. collateral cannot be posted, substantial losses on PCDS structures
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> • Restructuring measures, e.g. capital increase • Transfer of tied assets to another insurer with suitably sound credit rating, possibly also a special purpose entity
▼	Measures by affected clients	<ul style="list-style-type: none"> • Credit risks hedged with a different provider, e.g. bank • Replacement cover taken out with another insurer • Possibly also settlement of outstanding balances, seizure or legal action¹²⁵
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> • Compulsory portfolio transfer • Once insolvency proceedings have been opened, pursuant to Art. 55 ISA, prohibition of repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits
▼	Evaluation	<ul style="list-style-type: none"> • Systemic risk: none <ul style="list-style-type: none"> – Resilience: medium – Probability of occurrence: high – Extent of damage: medium
	Further supervisory requirements	<ul style="list-style-type: none"> • Liquidity requirements • Separate, business-specific regulation and supervision in line with tightened banking standards for CDSs, otherwise banned for the insurance sector, if no viable alternative can be devised

4.6.1.3 Comments

Selling CDSs is neither a distinctive service of the insurance sector nor is it widespread in Switzerland. CDSs are not insurance products or policies, but derivatives: they are swap contracts. There is no insurable risk, in the narrower sense, to be insured.

From the supervisory perspective, selling CDSs seems appropriate only in connection with replication strategies¹²⁶ carried out for the purpose of efficient asset management. The selling of CDSs in relation to back-to-back credit hedging transactions between a central credit trading desk and legal entities of the same insurance group also seems appropriate, when the centralised, intra-group counterparty

¹²⁵ The settlement of outstanding balances, the seizure of assets and the instigation of legal action are measures generally available for use in extreme situations, but they do not seem conducive to an orderly resolution. They are mentioned here for the sake of completeness.

¹²⁶ Cf. Art. 100 ISO for all insurers and, where applicable, FINMA Circular 2008/18 "Investment Guidelines for Insurers" [[→](#)].

provides credit protection to the group's legal entities and immediately hedges itself on the capital markets.

CDS and PCDS transactions point to two major issues. On the one hand, financial market risks, in this particular case credit risks, and insurance risks follow different rules. Other factors are at play in terms of correlations or diversifications and tail risks. Because the relative importance of idiosyncratic and systematic¹²⁷ risks in the risk management of the two sectors¹²⁸ differs substantially, risk diversification across both fields of activity cannot plainly be assumed. This is especially true when CDSs are not used for hedging purposes in investment portfolios, but are offered as hedging instruments on the capital markets. On the other hand, since the financial crisis of 2007-09, arbitrage between the two sectors may be suspected. The information asymmetry which occurs in the structuring and pricing of PCDSs is a risk that deserves consideration and which, in hindsight, was underestimated by insurers. CDSs lie outside their core competence. Yet, it is striking that the sector should usually assign crucial importance to the very same information asymmetry when addressing antiselection and adverse selection issues in its core business.

The range of supervisory instruments currently available is of limited use. The SST can at best serve as an indicator, but, not only must the total balance sheet and risk models actually capture CDS and PCDS positions and synthetic CDO structures, their diversification properties must also be modelled adequately, especially in relation to tail events¹²⁹. This area of activity calls for business-specific and, where necessary, separate regulation and supervision in line with tightened standards¹³⁰. To allow this business to operate unregulated and without an adequate capital buffer is negligent. The additional threat to groups stemming from cross-default clauses specified under such transactions must also be considered. Insurers are prohibited from carrying out stand-alone CDS business in regulated entities. Without adequate regulation, thought should be given to extending such a ban to insurance groups.

4.6.2 Default on leveraged investment programmes

4.6.2.1 Brief description

This scenario deals with the effects of a default, or the stages leading to default, on leveraged, i.e. debt-financed, investment programmes.

These programmes refer to investments in instruments that are funded not, as traditionally in insurance, by placement of premiums, but by accessing the money or capital markets¹³¹. Positions in such instruments are refinanced (renewed or rolled over) by issuing securities backed by those very

¹²⁷ Effectively: systematic, not systemic.

¹²⁸ Cf. [EFD,3: Annex 5, no. 1].

¹²⁹ Cf. "Reinsurers in particular have been working with Pareto models for decades in order to model major claims appropriately; excess of loss (XL) policies render the modelling of excesses necessary. By contrast, banks work mainly with Gaussian models in which tail risks, in particular, are far too optimistically valued." [JR,1: Extreme value theory for financial time series (transl.)].

¹³⁰ Geared to the necessary overhaul of Basel II. Cf. also [JF,1: no. IV(E), pp. 9—11].

¹³¹ E.g. commercial paper (CP) and medium-term notes (MTNs); cf. also note issuance facilities (NIFs).

same instruments. These are carry trades, whereby differences¹³² are exploited to generate additional returns. So, for instance, asset-backed commercial paper (ABCP) programmes became (in)famous in the course of the 2007-09 financial crisis¹³³. Before the crisis broke, ABSs or CDOs were suitable investments for such structures, aside from the associated credit and liquidity risks, because they delivered the highest margin compared to short- to medium-term funding.

4.6.2.2 Scenario

96	Causes	<ul style="list-style-type: none"> • Inability to refinance investment owing to lack of liquidity on the money or capital markets or downgrade of the insurer's credit rating • Inability to continue to post investments as collateral because they are illiquid and the markets are in turmoil • Drastic downgrade of credit rating or of assessment of capacity to pay¹³⁴
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> • Insufficient SST ratio: possible
▼	Mitigation or remedy	<ul style="list-style-type: none"> • Derisking • Posting of (additional) collateral • Activation of standby liquidity facilities, e.g. letters of credit
▼	Consequences / negative externalities	Liquidation of assets up to and including failure to pay or even default on leveraged investment programmes
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> • Restructuring measures, e.g. capital increase • Portfolio transfer along with tied assets to a special purpose entity or another insurer
▼	Measures by affected clients	<ul style="list-style-type: none"> • Replacement cover taken out with another insurer
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> • Compulsory portfolio transfer • Once insolvency proceedings have been opened, pursuant to Art. 55 ISA, prohibition of repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits
▼	Evaluation	<ul style="list-style-type: none"> • Systemic risk: none <ul style="list-style-type: none"> – Resilience: medium – Probability of occurrence: medium – Extent of damage: medium
	Further supervisory requirements	<ul style="list-style-type: none"> • Liquidity requirements • Refinancing policy geared primarily towards core business • Separate, business-specific regulation and supervision

¹³² In maturities, liquidity, etc. De facto, such strategies aim to monetise risks and are thus anything but free of risk.

¹³³ E.g. in off-balance-sheet structures known as conduits. Cf. also [CL,1].

¹³⁴ Refinancing is, in essence, a relationship business: if the financial markets are in upheaval, a natural catastrophe with an as yet unquantified claims burden for an insurer may severely limit its refinancing options.

4.6.2.3 Comments

Refinancing is as much a business-relevant activity for insurers as for other companies. The fact that treasury departments and their operations exist is not being questioned, but rather the commensurability of their refinancing activities and the objectives pursued under their refinancing policy. A shortage of liquidity in the banking sector or on the money and capital markets will inexorably and immediately affect the insurance sector if refinancing needs must be met.

Insurers' susceptibility to upheavals on the capital markets, to liquidity bottlenecks on the money or capital markets and to credit rating downgrades is further increased by leveraged investment programmes. Where such programmes are disproportionate, e.g. in the implementation of balance sheet growth strategies, unfavourable market conditions and events can burden the insurance company to the point where it defaults on its payment obligations. Speculative exploitation of differences, in particular asset-liability mismatches, should not be permitted to endanger the insurer's financial stability. The insurer's business model is not maturity transformation, as the AIG case clearly revealed during the financial crisis of 2007-09. General American Life is often cited as an example of asset-liability mismanagement. In fact, the company's issues stemmed from a failed leveraged investment programme¹³⁵.

Such refinancing activities¹³⁶ presuppose that both insurers and supervisory authorities are adequately equipped. For an insurer, this specifically entails the intensive management of liquidity, counterparty risks, collateral and margin calls. All due account must be taken of such refinanced investments, their correlation to existing investments, their liquidity, and the deliberate maturity mismatches. It must be possible to timely monitor money market operations, including collateral and margin calls, for risk and liquidity management purposes, which will tend to involve daily or even intra-day monitoring as well as refinancing plans for emergency situations.

The range of supervisory instruments currently available is of limited use. The SST can at best serve as an indicator, but no capital buffer can be formed to cover liquidity risks: on the one hand, that very capital may consist of illiquid assets, while, on the other hand, the management of liquidity risks is significantly more time critical than capital. An insurer's refinancing policy must be geared primarily to its core business¹³⁷. Nested, debt-financed and leveraged constructs, for instance repo-on-repo or lending-on-lending in securities lending operations, ought to be prohibited to ensure a manageable

¹³⁵ More precisely, short-term funding agreements, which are comparable with commercial paper (CP). A crisis of confidence ensued from the downgrade of General American Life's credit rating by Moody's. The volumes involved in the short-term funding agreements (approx. USD 7 billion) and the short contractual termination notices proved fatal in the face of two waves of repayment demands. Cf. "These funding agreements are sold as an alternative to commercial paper to money market funds as well as to bank short-term investment funds and securities lending programs" in Moody's Short-Term Insurance Financial Strength Ratings, November 1999. Guaranteed investment contracts (GICs) are used in a related manner, though these are more akin to certificates of deposit (CDs).

¹³⁶ The idea of structuring treasury departments as profit centres in non-banks predates the 2007-09 financial crisis. In the 1980s, Japanese groups were famous for their mastery of financial management ("zaiteku"), until the bubble burst in the early 1990s. Equally known are the treasury activities of Procter & Gamble and the latter's legal dispute with Bankers' Trust (BT) in 1993. P&G survived the loss of around USD 150 million on a single transaction, whereas BT was taken over by Deutsche Bank.

¹³⁷ Cf. Art. 4 and 11 ISA. The refinancing policy should be aligned to the insurer's comprehensive risk policy and its overall strategic orientation.

degree of traceability in times of crisis when such cascades have to be disentangled. Regulation of refinancing in the insurance sector can be based only marginally on existing bank regulation¹³⁸.

4.7 Scenarios focusing on group structure

4.7.1 Default caused by limited fungibility of capital and liquidity

4.7.1.1 Brief description

This scenario deals with the effects of a default caused by the limited fungibility of capital or liquidity within an insurance group. It relates to the issue of capital or liquidity being in the wrong place at the wrong time, in particular if legal entities located in other jurisdictions are ring-fenced in order to protect local policyholders in a crisis.

4.7.1.2 Scenario

96	Causes	<ul style="list-style-type: none"> Increased need for capital or liquidity at parent company or otherwise in the group, e.g. following exercise of a (parental) guarantee Timely repatriation of capital or liquidity from certain legal entities within the group impeded by coordination overhead and regulatory approvals; imbalances in quality of capital and liquidity built-up over time to optimise group finances (e.g. regulatory arbitrage) Ring-fencing of legal entities in other jurisdictions, e.g. to protect local policyholders in a crisis
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> Partial capture of situation in SST (capital, not liquidity) owing to granular approach¹³⁹ Possible warnings from supervisory colleges or other contacts among the supervisory authorities ahead of any ring-fencing
▼	Mitigation or remedy	<ul style="list-style-type: none"> Adequate capitalisation of legal entities according to local and SST requirements¹⁴⁰ ahead of any ring-fencing Reallocation of capital or liquidity within the group, but not to the detriment of other legal entities Activation of standby liquidity facilities, e.g. letters of credit
▼	Consequences / negative externalities	Default caused by limited fungibility of capital or liquidity within the insurance group
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> Liquidation of assets Restructuring measures, e.g. capital increase Portfolio transfer along with tied assets to a special purpose entity or another insurer

¹³⁸ Cf. for instance Art. 21—44 FINMA Circular 2010/2 "Repo/SLB" [[→](#)].

¹³⁹ Cf. granular and consolidated group models in FINMA Circular 2008/44 "SST" [[→](#)], especially Annex 2, mn. 6.

¹⁴⁰ This will apply from 2011 and solely to Switzerland. The eurozone is scheduled to follow suit with EU Solvency II at the beginning of 2013.

▼	Measures by affected clients	<ul style="list-style-type: none"> • Replacement cover taken out with another insurer
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> • Compulsory portfolio transfer • Ring-fencing of insurers supervised in Switzerland to avert claims brought by foreign authorities • Once insolvency proceedings have been opened, pursuant to Art. 55 ISA, prohibition of repurchase, pledging (as collateral), advance payment or, where applicable, payment of policyholder benefits
▼	Evaluation	<ul style="list-style-type: none"> • Systemic risk: in certain circumstances <ul style="list-style-type: none"> – Resilience: medium – Probability of occurrence: medium – Extent of damage: medium
	Further supervisory requirements	<ul style="list-style-type: none"> • Liquidity requirements, specifically self-sufficiency of legal entities • Guarantees and other capital substitutes fully accounted for • Separate, business-specific regulation of legal entities • Ban on parental guarantees to the benefit of non-regulated entities • Requirements regarding cross-default clauses • Internationally concerted, co-ordinated resolution and insolvency scheme

4.7.1.3 Comments

In insurance practice, the local supervisory authorities would typically ring-fence legal entities in order to protect local policyholder interests, since this measure prevents the relocation of assets, in particular those set aside to cover technical provisions. Although an international resolution scheme is desirable, it does not yet exist and, subsequently, ring-fencing is an essential measure to ensure local orderly resolution.

Ring-fencing is usually at the expense of the group or its parent company, because the optimisation of a group's capital or liquidity position (e.g. regulatory arbitrage and refinancing conditions) gives rise to capital or liquidity imbalances within the group. Even in times of no crises and without enforced ring-fencing, the repatriation of capital or liquidity (also dividend distributions) to the group or its parent company may be subject to approval by the supervisory authorities. This applies especially to Anglo-Saxon jurisdictions, where approvals can take months to obtain; accordingly, provisions must be made. Obviously, the needs of a group operating as a going concern do not readily harmonise with the internationally fragmented landscape of jurisdictions, when seen from the perspective of policyholder protection and orderly resolution (gone concern).

An integrated approach to insurance groups in the supervisory process would prove a milestone in prudential supervision¹⁴¹. The SST makes a valuable contribution with the granular and consolidated models for groups and conglomerates. Yet, the SST is based on economic considerations, whereas presently, the worldwide norm is to assess solvency largely on the basis of Solvency I or other

¹⁴¹ Cf. "At the national level, the financial crisis exposed the limits of supervision that is geared only to local entities and neglects the systemic implications of financial institutions with global reach." [CUMJ,1].

formulaic approaches¹⁴². Therefore, the SST can only provide a partial solution to the fragmented international situation.

Moreover, there are many ways in which financial risks can be transferred within a group. Intra-group transactions¹⁴³ comprise equity interests, limited and unlimited guarantees, and cross-default clauses specified under capital market transactions¹⁴⁴, where such are permitted. They have the capacity to distort the perceived structure of a group and, as a result, its resilience. Intra-group transactions aimed at capital gearing prove problematic too, since, in the event of a crisis, the group's capitalisation may turn out to be substantially understated. This may result in a double setback¹⁴⁵.

Dealing with systemic risks is a matter of tracing the impact from within the group all the way into the real economy, which is why distortions of any kind are unwelcome. Legal entities engaging in non-insurance business within an insurance conglomerate and benefitting from guarantees issued by the parent company or others¹⁴⁶ pose a threat to the entire group. If a guarantee is established to the benefit of a non-regulated entity, the threat is indefinite, at least in supervisory terms. In the worst case, the parent company, despite being ring-fenced, would have to be forced into insolvency to avert claims brought by foreign authorities under guarantees or cross-default clauses and thus, eventually, to protect local policyholder interests. Consideration must be given to banning this type of intra-group transactions, if no viable alternative can be devised.

Based on these considerations, it is also essential to actively monitor all internationally co-ordinated developments (e.g. those of the IAIS and the Joint Forum) in relation to group regulation and supervision. When assessing solvency pursuant to the SST, care must be taken to ensure that the risks stemming from intra-group transactions and authorised non-insurance business are properly captured, so as to avoid cases of sector arbitrage. Solvency assessments must also be complemented by liquidity requirements¹⁴⁷. Here the emphasis is on the self-sufficiency of individual legal entities as a means of improving the chances of international orderly resolution in the current international context.

¹⁴² E.g. the risk-based capital (RBC) system by the National Association of Insurance Commissioners (NAIC) in the USA.

¹⁴³ Cf. FINMA Circular 08/29 "Intra-Group Transactions in Insurance Groups" [[→](#)].

¹⁴⁴ E.g. in Master Agreements of the International Swaps and Derivatives Association (ISDA).

¹⁴⁵ All intra-group transactions should be modelled in the SST. If they are all properly captured, the SST should prove to be a valuable tool.

¹⁴⁶ The operations carried out by such entities are usually inevitably based on the existence of a guarantee.

¹⁴⁷ The posting of collateral and margin calls as well as letters of credit, e.g. (A)XXX (redundant reserves) in US life business, must all be taken into account.

4.7.2 Non-insurance business

4.7.2.1 Brief description

This scenario deals with the effects of an impairment of the capital or liquidity of an insurance group driven by non-insurance business. Non-insurance business¹⁴⁸, of which capital markets activities form a subset, covers non-regulated activities and activities that are regulated outside insurance.

4.7.2.2 Scenario

96	Causes	<ul style="list-style-type: none"> Losses in the group's non-insurance business
▼	Symptoms picked up by supervisory regime	<ul style="list-style-type: none"> Inadequate solvency pursuant to SST, provided non-insurance business is adequately captured, if at all
▼	Mitigation or remedy	<ul style="list-style-type: none"> Depending on the type of non-insurance business in question
▼	Consequences / negative externalities	Impairment of the group's capital or liquidity driven by non-insurance business
▼	Measures by affected institution or insurance sector	<ul style="list-style-type: none"> Separation or sale of non-insurance business Restructuring measures, e.g. capital increase Reduction in or even temporary withdrawal from insurance business Portfolio transfer of existing business
▼	Measures by affected clients	<ul style="list-style-type: none"> Replacement cover taken out with another insurer
▼	Crisis measures by the authorities	<ul style="list-style-type: none"> Compulsory portfolio transfer Orderly resolution of existing business
▼	Evaluation	<ul style="list-style-type: none"> Systemic risk: in certain circumstances¹⁴⁹ <ul style="list-style-type: none"> Resilience: <u>low</u> to medium Probability of occurrence: medium Extent of damage: low to <u>high</u>
	Further supervisory requirements	<ul style="list-style-type: none"> Liquidity requirements Comprehensive group supervision Separate, business-specific regulation and supervision of insurance and non-insurance business

¹⁴⁸ Cf. ISO and "Insurance branches" in Annex 1 ISO. Here, non-insurance business is defined in the narrow sense as the complement of all defined and regulated insurance branches. Such business is usually carried out in dedicated legal entities within the group.

¹⁴⁹ Because non-insurance business can take many distinct forms, the assessment will ultimately depend on the type and scale of the non-insurance business in question. In the summary of the scenario assessments, the evaluation is based on the assumption of a low resilience and high extent of damage.

4.7.2.3 Comments

Upheavals in non-insurance business may in certain circumstances spread to the entire insurance group. For this to happen, the financial losses must exceed the financial strength of the legal entities directly involved and affect the capital or liquidity of other entities in the group (e.g. the parent company), via the group structure¹⁵⁰ or intra-group transactions. When considering non-insurance business, however, a distinction must be drawn between undertakings in capital markets and the real economy: experience shows that capital markets activities have a closer correlation with core insurance business and that the conditions for contagion are therefore different.

AIG¹⁵¹ is a prime case of non-insurance business and its attendant threats. A group's vulnerability is significantly increased by capital markets activities, especially when conducted on non-regulated entities. Undertakings in the capital markets may intensify the existing and inevitable interconnectedness resulting from investment activities, both on the asset side and, in particular, on the liability side of the balance sheet. Furthermore, in order to carry out securitisations and other transactions on the capital markets, and achieve optimal refinancing, extensive use is made of intra-group transactions, especially in the form of guarantees and cross-default clauses, which may result in a failure in one group company to affect the rest of the group. Here the emphasis is placed on properly covering capital markets activities including their business-specific modelling and regulation: on the one hand, to prevent arbitrage between the constituents of the financial sector and, on the other hand, in the event that claims are brought against the insurance group, to maintain the ability to safeguard policyholders interests in an as orderly as possible resolution. Although the SST lays the correct foundations, the threat is largely driven by the degree of interconnectedness prevailing in a crisis, and must not be left indefinite in supervisory terms.

In contrast to undertakings in capital markets, other forms of non-insurance activities pose different problems. The assumption is that such operations correlate marginally, if at all, with the core insurance business. If so, the driving factors will be industry-specific and operational risks, in particular legal and reputational risks¹⁵². Although, in principle, all legal entities within a group must be accounted for in the SST, currently the treatment of non-financial activities is beset by numerous uncertainties which must yet be addressed meaningfully. In a crisis, the existing insurance portfolio may be subject to compulsory transfer or resolution while the non-insurance operations of the group are consigned to insolvency. Such considerations relate to a few insurance groups in Switzerland only.

There are no specific supervisory requirements with regard to the solvency of insurers engaged in non-insurance operations to avert the contagion of the core insurance business. Although crisis

¹⁵⁰ Cf. Ethias' problematical participation in the Dexia Group [→] and [→].

¹⁵¹ Cf. [HARS,1].

¹⁵² The following is a theoretical case that voids Art. 11 ISA, which focuses solely on the individual insurance company and not on the group: An insurance conglomerate which also happens to operate in the food industry is sued on account of food contagion. The legal and reputational damage exceeds the financial resources of the food operation on its own. Nevertheless, the funds required for orderly resolution of the insurance business may not be deployed.

measures largely exist, the operational and precautionary measures¹⁵³ still need to be worked out. Within an insurance group, core business ought to be continuously insulated from contagion of non-insurance activities¹⁵⁴. In addition, the business-specific regulation of all legal entities¹⁵⁵ ought not rest on a reservation, but on a licensing requirement and possibly prohibitions, if no viable alternative can be devised. Accordingly, the preventive ban subject to permission to engage in non-insurance business pursuant to Art. 11 ISA is not sufficient. Moreover, it applies to individual insurers, not groups. One way forward may be to expand Art. 21 ISA to control equity interests in non-insurance operations.

4.8 Other scenarios

Countless other scenarios are conceivable in response to various other causes. However, the investigations in this paper concentrate on the consequences and potential negative externalities; they are not an attempt to discuss all possible causes. Additional scenarios would be largely redundant in that a variety of causes ultimately boil down to the same consequences and measures. This ensues from the business model and the insurance supervisory regime; the mix of measures, ranging from freedom of contract to risk finance, portfolio transfer and orderly resolution, plays a major role. Without the supporting time dimension in insurance, which, by contrast, tends towards zero or is altogether absent in the banking sector¹⁵⁶, such measures would be inconceivable in their current form.

Most scenarios relate to individual insurance functions (services or activities) or firms. Their consequences appear to be local and the impact of possible negative externalities limited, which manifest themselves as a shortfall in insurance capacity and, in some cases, reductions in insurance benefits to a confined group of policyholders. These insurance functions and insurers therefore pose no systemic risks.

In the assessment of systemic risks, each scenario is essentially considered in isolation, but cumulative effects can never be ruled out, as the AIG case proves. However, the sector's resilience currently relies primarily on the resilience of individual insurance functions and firms, as there are no comprehensive supervisory measures spanning the insurance sector as a whole¹⁵⁷. And yet, at heightened levels of interconnectedness and exposure to the same threats, the entire insurance sector exhibits weaknesses, e.g. in the event of a pandemic or a financial crisis.

In the case of a pandemic, insurers and especially major reinsurers can expect to see a large concentration of tail risks as well as risk accumulations¹⁵⁸. The capitalisation of insurers and

¹⁵³ Cf. also the Financial Conglomerates Directive (FCD) [EU,2].

¹⁵⁴ Measures protecting core business against contagion from non-insurance activities should be no weaker for an insurance group than the regulations applying to insurance, otherwise the extensive insurance regulation and supervision is undermined and, moreover, false incentives are given.

¹⁵⁵ The ongoing studies by the Joint Forum [JF,1: no. IV(B), pp. 7–8] on this matter are of interest here.

¹⁵⁶ The US banking sector is carving out the time it needs thanks to the FDIC procedures and special measures under insolvency law, although eventually this is being done at the taxpayers' expense.

¹⁵⁷ Neither in Switzerland nor at international level. Following the financial crisis of 2007-09, macro-prudential supervision regained much attention. Cf. the topical thoughts on macro-prudential supervision expressed back in 1986 in [BIS,1: Part 1 let. A].

¹⁵⁸ Claims for loss of profits (business interruption), claims under life policies, etc.

reinsurers, in particular, aims at ensuring that adequate provision is made for such extreme scenarios. However, since the models have not been tested in practice¹⁵⁹, the consequences remain eminently undefined, should estimates prove inaccurate. In such a situation, the concentrations with reinsurers and their degree of interconnectedness with primary insurers represent a substantial threat to the sector. Yet, it is unclear whether, in an extreme pandemic scenario, such matters may actually not be overshadowed by rather more fundamental issues: with death rates soaring, minds will focus on life-or-death issues, such as securing basic logistics (food supplies, energy, etc.) and the availability of doctors and hospitals, rather than insurance cover. Such overarching considerations will arguably arise in all extreme scenarios and represent their natural limits. Nevertheless, scenarios remain a necessary and effective complement to risk models, however elaborate the latter may be.

¹⁵⁹ Cf. [SR,6: no. 5.3 and 5.4.2].

4.9 Summary of scenario assessments

The assessments of the individual scenarios are summarised in the following table.

Extent of damage	high	<ul style="list-style-type: none"> Run on an insurer (§4.4.1). Systemic risk: none 	<ul style="list-style-type: none"> Contagion through investments (§4.5.1). Systemic risk: possible Non-insurance business (§4.7.2). Systemic risk: possible 	
	medium		<ul style="list-style-type: none"> Default caused by limited fungibility of capital and liquidity (§4.7.1). Systemic risk: possible Default on leveraged investment programmes (§4.6.2). Systemic risk: none 	<ul style="list-style-type: none"> Default on credit default swap obligations (§4.6.1). Systemic risk: none
	low		<ul style="list-style-type: none"> Loss of insurance capacity (§4.3.1). Systemic risk: none 	
		low	medium	high
Probability of occurrence				

Fig. 4: Summary of scenario assessments

The assessment of the systemic relevance of traditional insurance and the attendant systemic risks, if any, essentially concurs with the findings of the Zufferey Commission of Experts [EFD,3: e.g. Annex 1 no. 4]. This is understandable, as the business model of traditional insurance has not undergone any striking developments since the Zufferey Commission of Experts published its final report in 2000.

The current assessment is therefore that the main task lies not so much in eliminating systemic risks as in making selective improvements to the existing supervisory regime. Such improvements aim at safeguarding the insurance sector's resilience, especially with regard to non-insurance business and the structure of insurance groups.

5 Conclusions

5.1 General findings

Switzerland has never been obliged to bail out an insurer since the inception of insurance supervision in 1874 – not even during the financial crisis of 2007-09¹⁶⁰. For the sake of completeness, it should be stated that the Swiss insurance sector is of undisputed importance to the economy as a whole, yet is currently not backed up by a state guarantee of the kind enjoyed by the major banks, whether de jure or de facto. In Switzerland, no supervised insurance company is currently too big to fail (TBTF) or, for that matter, too big to rescue (TBTR). On the one hand, the existing combination of business model and supervisory regime appears to be sufficiently well adapted to permit the orderly resolution of individual insurance company failures, while, on the other hand, the size of the balance sheets¹⁶¹ of Swiss Re and ZFS means that the state could bear the cost of a hypothetical bail-out¹⁶².

Looking ahead, both the economic environment and the activities of insurers will remain in a state of permanent evolution. The insured risks, size and interconnectedness of insurers could change rapidly¹⁶³. Likewise, the degree of substitutability within the insurance sector may deteriorate: if, for instance, the insurance sector, or the financial sector as a whole, become too interconnected, or the insurance sector generally runs out of capital and no further capital can be raised on the capital markets, either in the form of newly established insurance firms, insurance sidecars or even hedge funds¹⁶⁴. Moreover, the sector's rediscovered preference for traditional insurance business will not last. As soon as companies have restored their capital base and the crisis is over, the collective memory will be outweighed by growing expectations of returns on equity. Finally, the scenarios discussed point to weaknesses of varying seriousness in traditional insurance as well as in capital markets activities and non-insurance business.

¹⁶⁰ Since 1874, no policyholders have come to harm [EFD,3: Annex 3 no. 2]. There have been three cases of insolvency affecting healthcare insurers supervised by the FOPH, and another one affecting Universale Rück. FOPI, now FINMA, had no powers to intervene in reinsurance company insolvency proceedings. A number of portfolio transfers have occurred, e.g. the compulsory transfer of the D.A.S. portfolio in Geneva in 1992-93.

¹⁶¹ In the insurance sector, size is measured by premium volume and also by the number of policies. For TBTR purposes, the key figure is balance sheet size: this determines the financial capacity required from the state.

¹⁶² Swiss Re: approx. CHF 250 billion. ZFS: approx. CHF 350 billion. Balance sheets in the Swiss insurance sector are in a rough ratio of 1:10 compared with those of the Swiss banking sector. An additional factor to be considered is that, to a certain degree, policyholder claims are secured by technical provisions and the assets covering them. Today, as before the 2007-09 financial crisis, both insurance groups mentioned could be rescued without seriously affecting the state's credit standing.

¹⁶³ In terms of their balance sheets, financial institutions had been expanding prior to the financial crisis of 2007-09 by implementing balance sheet growth strategies (e.g. leveraged investment programmes). As the crisis developed, these strategies were identified as risky.

¹⁶⁴ Following periods of large-scale capital depletion, e.g. after natural disasters, the new, favourable climate on the insurance markets provides optimal conditions for high returns on capital. Thus, where barriers to market entry are relatively minor, opportunities arise for those with freely disposable capital. New non-life insurance firms are set up in low-tax jurisdictions, or else the capital is made available via insurance sidecars or other forms of participation. Such new insurers are known as the "class of <catastrophe/vintage year>"; e.g. class of 1986, following the collapse of industrial liability insurance (cf. observations on ACE and XL in the annex) or class of 2005, in the wake of hurricanes Katrina, Rita and Wilma. Cf. [BERR,1] on this point.

If the insurance sector is to maintain its reputation and stability, systemically and otherwise, it particularly requires an effective supervisory regime. Supervision must be co-ordinated, sustainable and adapted as and when necessary. Generally, and in advance of a looming crisis, the supervisory regime should act preventively. Once a crisis breaks out, the regime should work to limit the negative impact and, in emergencies, facilitate orderly resolution. A solution towards orderly resolution can be sought within the private sector or, in certain cases, be imposed by the state or the competent authorities¹⁶⁵. Such solutions may involve the takeover of a failed insurer or its problem portfolios by a sound insurance company or a dedicated receiving company. Whether resolution should, in exceptional cases, be assisted by limited state funding is a question to consider solely with a view to protecting the insurance function and the policyholders, not the insurance company itself. This distinction is vital to ensure that the state gives neither implicit nor explicit guarantees in favour of insurers.

The existing supervisory regime, supported by the insurance business model, has essentially proven itself to be adequate. Subsequently, a general overhaul of the regime or far-reaching modifications are deemed unnecessary. Rather, improvements incorporating new developments to preserve the sector's resilience should be carefully targeted. Even if only few direct systemic risks are discernible in the insurance sector, the supervisory authority, insurance companies, and also political forces are expected to address the issue of what direction the supervisory regime should take. Recent experience shows that the sector's resilience must be enhanced, which means considering the entire business spectrum. In particular, as exemplified by the AIG case, it is always conceivable that several threats of the kind posited in the scenarios discussed may materialise simultaneously, or that an insurance company may be exposed to the same threat through a number of different activities. From a supervisory standpoint, considering systemic risks separately would prove ineffective and could reflect misreading of the situation¹⁶⁶. In future, it will be necessary to further develop the macro-prudential perspective to complement micro-prudential considerations, for which the relevant regulatory framework is to be established.

All analysis and future debate on this subject must take account of the principle of proportionality, and measures taken must be in keeping with the risks identified. Likewise, due regard must be given to the existing supervisory regime and the additional control exercised by audit companies and rating agencies to optimise the regulatory and supervisory framework. Improvements must be co-ordinated and implemented in parallel with ongoing supervisory and regulatory projects, such as the SST or EU Solvency II.

5.2 Measures regarding the insurance business model

The scenarios outlined point to localised negative externalities of limited impact which do not pose systemic risks, but do affect traditional insurance business. Valuable additions could, therefore, be made to the current range of supervisory instruments, in particular with regard to liquidity, reserves and reinsurance. Such additions would further bolster the resilience of insurance functions (services or

¹⁶⁵ Cf. the wave of mergers welcomed by the Swiss government during the real estate crisis of the 1990s, from which Credit Suisse and UBS emerged in their present forms.

¹⁶⁶ Cf. e.g. Art. 5 FINMASA.

activities), individual insurers, and hence, the sector as a whole, and should therefore be given serious consideration.

5.2.1 Liquidity

The insurance sector's resilience needs to be enhanced by regulatory measures governing liquidity and liquidity risk management. Liquidity and liquidity risks always feature in financial crises, whether as a cause or as an exacerbating factor. The fungibility of financial resources among the legal entities that make up an insurance group and the interplay between capital and liquidity must be comprehensively addressed, including mismatches between asset and liability positions¹⁶⁷ and maturities. These factors play a key role in the orderly resolution of insurers, because ring-fencing legal entities is an obvious way of protecting policyholder interests in a crisis, especially in the absence of an international resolution scheme. The aim is to alleviate or, ideally, solve the problem of having liquid assets in the wrong place at the wrong time¹⁶⁸.

The foreseen FINMA Circular "Risk Situation of Insurers" addresses the description and assessment of the risk situation, including risk concentrations and accumulations, of insurers supervised in Switzerland. It is also to cover general principles and minimum requirements governing the reporting of liquidity by insurers, with reporting duties being complemented by liquidity management requirements. Considerable significance will be attached to the notion of self-sufficiency in terms of liquidity within legal entities. While it is assumed that SST and Solvency I provide for insurers and insurance groups being sufficiently well capitalised, liquidity is an aspect that has been neglected. The legal basis for requirements governing liquidity and liquidity risk management need to be reviewed. Developments in the EU¹⁶⁹ will also need to be monitored. Under the EU Solvency II directive, liquidity risk is one of the risks that must be managed [EU,3: Art. 44 para. 1 and 2 let. d].

5.2.2 Reserving process

Building up and managing reserves¹⁷⁰ are vital components of the insurance activity. The reserving process should be subject to regular monitoring, especially by the insurer itself¹⁷¹. It is in fact so important that it has earned attention from the insurers themselves and from a variety of stakeholders, such as the supervisory authorities, analysts, investors, clients, audit firms, and rating agencies. Not only is the process of importance: owing to the inherently uncertain nature of the business, it is also

¹⁶⁷ In the sense of structural or other surpluses (overhang) of assets or liabilities.

¹⁶⁸ And also to alleviate the problem of the direct and indirect "exploitation" of certain legal entities (e.g. parent companies) by means of guarantees or cross-default clauses.

¹⁶⁹ Cf. "Regulators should develop and implement procedures to ensure that financial firms implement policies to better manage liquidity risk, including by creating strong liquidity cushions." [EU,4: p. 22].

¹⁷⁰ The reserving process is supported by requirements for tied assets where prescribed by law.

¹⁷¹ Some insurers report periodically on their reserves, e.g. as part of their annual financial statements. A sound reserving process boosts confidence in the company.

complex and, above all, fragile. It is impossible to predict how actuarial risks, including reserving risks¹⁷² (e.g. assessment of liability risks), will change over time.

Being forced to put up additional reserves can destroy confidence in an insurer. The 1985-86 crisis in industrial liability insurance highlighted the way in which inaccurate assumptions in the actuarial practice – in this case, in the reserving process¹⁷³ – can result in the interruption of an insurance function. These do not necessarily represent a systemic risk, since any negative externalities that arise will tend to affect certain parties rather than the whole economy. Moreover, shortfalls in insurance cover can be mitigated by pragmatic and tested solutions.

The many instances in which the fragility of this core process has been revealed, usually by an insurer being forced to put up additional reserves, are sufficient reason to intensify supervision of the reserving process and its management. Generally this would fundamentally boost insurers' resilience. Supervisors should regularly review how insurers handle their reserves, both quantitatively and qualitatively. This review process requires expert actuarial opinion to take proper account of its specificity. For reasons of expediency, when the Swiss Quality Assessment¹⁷⁴ (SQA) was introduced and first carried out in 2008, emphasis was placed on corporate governance, the internal control system and risk management. Most of the elements for an SQA tool providing a qualitative assessment and review of claim settlement procedures in non-life insurance already exist¹⁷⁵. This tool can be updated and expanded, in particular to cover its linkage with the reserving process and with reference to the particularities of life insurance.

5.2.3 Reinsurance

Reinsurance is regulated and reinsurance companies are subject to insurance supervision. Unlike for primary insurers, however, there are no rules on tied assets. The main reason for this is that policyholder protection is principally shaped and provided in direct business with the primary insurers. Since primary insurers constitute institutional clients of reinsurers, it is assumed that certain regulatory elements are not required. Swiss supervisory law does not provide for transfer of a reinsurance portfolio, but switching individual counterparties is foreseen. Furthermore, guarantees or commutations can be agreed contractually.

The resilience of reinsurers is sometimes underestimated, with the result that the risks associated with the reinsurance sector are exaggerated. This may be due to its globally oriented business model, which is little known¹⁷⁶ or understood, and to a lack of recognition of the additional control exerted by primary insurers. Unlike the interbank market, reinsurance generates a largely hierarchical interconnectedness within the insurance sector. The redistribution of insurance risks takes the form of

¹⁷² Cf. [EFD,5: no. 2 and 5], and: "[...] unexpected legal changes present a fundamental problem when they affect the payout scheme." [LIEP,1: p. 214], which they almost inevitably do.

¹⁷³ Cf. observations on Convenirium in the annex.

¹⁷⁴ Cf. the FINMA press release announcing the results of the first Swiss Qualitative Assessment [[→](#)] and the corresponding report [FINMA,1].

¹⁷⁵ The SAM-CMT (Self Assessment-Claims Management Tool) has already been tested in collaboration with individual Swiss insurers.

¹⁷⁶ This at least is the main argument advanced by reinsurers and is plausible in a business geared to an institutional clientele.

a diversification on primary insurance level, and a controlled concentration of the same risks at reinsurance level. This redistribution is based on a diversification of counterparty risks and the control of risk accumulation across business lines, on the part of both insurers and particularly reinsurers. There are no regulatory requirements for this essential control. However, capital must be set aside for unexpected risk accumulations. The financial strength requirements that apply to reinsurers are set by regulation, with additional influence from primary insurers, reinsurers in retrocession business, and rating agencies.

Extreme risks, such as pandemics, as well as non-insurance and capital markets activities, can overwhelm the tested reinsurance business model. The planned FINMA Communication on "Ceded Reinsurance in Tied Assets" (working title) is intended to address diversification requirements of ceded reinsurance in tied assets using a risk-based approach. The extent to which allowance can be made for both external and intra-group retrocessions (IGRs)¹⁷⁷ is to be linked to the reinsurer's financial resources and stability. Caps on such allowances are designed to give further incentive for diversification. Diversifying reinsured business protects the cedent in a crisis and paves the way for orderly resolution of failed reinsurers or individual failed entities in a reinsurance group. This measure codifies an already widespread practice.

Since there is no obvious need, no other measures are proposed in relation to reinsurance. There may be cause to consider introducing tied assets in reinsurance as well as rules on risk accumulation control. Tied assets would encourage orderly resolution of reinsurers, which would prove beneficial in such a globally oriented business. However, such a measure is restrictive and therefore, if at all, it should not be introduced unilaterally in Switzerland. Practical experience will show how the SST, combined with the foreseen FINMA Circular "Risk Situation of Insurers", is suitable for the purpose of risk accumulation control.

5.3 Measures regarding non-insurance business and capital markets activities

Because non-insurance business and capital markets activities can intensify and generate systemic risks, action needs to be taken. The following statement made in 2003 has since been proven wrong by the AIG example: "The potential risks within financial conglomerates assume systemic proportions only when a commercial bank is involved that is sufficiently big to trigger a bank run." [SR,1: p. 30]. In fact, the size of a legal entity like AIGFP is overshadowed by leverage, derivative-induced increases in interconnectedness or non-regulated activities. Intra-group transactions, such as guarantees and cross-default clauses, spread this potential threatening interconnectedness within the group in ways which cannot generally be traced.

¹⁷⁷ For instance, secured loans within groups are a viable alternative once an individual legal entity's IGR capacities have been exhausted.

5.3.1 Non-insurance business

Non-insurance business consists in particular of banking and the operation of investment companies and investment funds¹⁷⁸. Art. 11, especially Para. 2 ISA, regulates the conduct of non-insurance business, while Art. 21 defines the duty of information in respect of equity interests. When the Insurance Supervision Act was amended in 2006, the prohibition was replaced by a preventive ban subject to permission¹⁷⁹. In the late 1990s, the danger of contagion was not perceived clearly enough¹⁸⁰, although policyholder protection always was the core principle: "The justification for restricting insurers' access to non-insurance business is not evident, provided the solvency of the insurer is not endangered by such business. The Commission of Experts therefore proposes that serious consideration also be given to lifting the prohibition on direct non-insurance business in the context of the revision of insurance supervision legislation." [EFD,3: no. 332 (transl.)].

However, the experience of the recent financial crisis suggests there is a real danger of contagion of insurance business emanating from banking and capital markets activities within insurance groups. The risks associated with an advanced state of convergence (bancassurance) and direct interconnections between banking and insurance are amply illustrated by the fate of AIG, the US monoliners, and conglomerates, such as Fortis and ING, in the financial crisis of 2007-09. Such threats should be at least weighted similarly to managerial arguments stressing how synergies can be generated by complementary offerings and the diversification of activities

With regard to safeguarding the stability of insurance groups engaged in non-insurance business, there are no specific supervisory rules to protect the core insurance business against external contagion. Although crisis measures largely exist, the operational and precautionary measures still need to be worked out. The current provision of Art. 11 ISA, whereby insurers require permission to engage in non-insurance business, is not adequate because it applies only to the individual insurance company. One way forward may be to expand Art. 21 ISA to control equity interests in non-insurance operations, thereby providing for ongoing protection of the core business against contagion from non-insurance activities. The aim would be to cover all legal entities within a group¹⁸¹, as provided for in the SST. When drafting the relevant provisions, however, a distinction must be drawn between undertakings in capital markets and the real economy: experience shows that capital markets activities have a closer correlation with core insurance business and that the preconditions for contagion are therefore different.

The only readily workable option seems to be the separate, business-specific regulation and supervision of both insurance and non-insurance business¹⁸². If correlations between insurance and

¹⁷⁸ By way of demarcation, capital markets business (ILSs, CDSs, credit insurance and financial guarantee insurance, etc.) is discussed separately.

¹⁷⁹ Cf. "The draft no longer contains an explicit prohibition of non-insurance business activities. However, in future the only permitted activities will essentially be those with a direct connection to insurance business" [CH,1: §1.2.4.1 p. 3799, §1.2.5.1.6.2 p. 3804 and Art. 11 p. 3814 (transl.)].

¹⁸⁰ Cf. also [EFD,3: no. 422] on bancassurance activities and observations on its regulation.

¹⁸¹ The ongoing studies by the Joint Forum [JF,1: no. IV(B), pp. 7—8] on this matter are of interest here.

¹⁸² Off-balance-sheet positions (e.g. SPEs and VIEs) must also be regulated in a business-specific, comprehensive manner. Cf. also "(...) some SPEs are set up as 'orphan' companies with their shares settled on charitable trust and with

non-insurance activities cannot be adequately captured in the SST, no allowance may then be made for diversification benefits¹⁸³, which would underestimate the required capitalisation. Capital add-ons may even be considered. Intra-group transactions influence and distort business relationships within a group and affect the internal flows of capital and liquidity. Intra-group transactions that involve non-insurance business are especially problematic: serious consideration must be given to banning or restricting them.

5.3.2 Capital markets activities

Supervisory law does not clearly define or specifically address capital markets activities. According to the lines of insurance business listed in Annex 1 ISO, capital markets activities are a form of non-insurance business that, owing to its importance, merits a distinctive approach¹⁸⁴.

For the insurance sector, capital markets activities currently comprise the hedging (industry loss warranty, ILW) and securitisation (insurance-linked security, ILS) of insurance risks, credit and surety insurance¹⁸⁵, credit hedging solutions, such as credit default swaps (CDSs; protection seller) or collateralised debt obligations¹⁸⁶ (CDOs), portfolio CDSs (PCDSs), credit enhancements, repos, lending and borrowing of securities as well as refinancing, e.g. leveraged investment programmes.

Three rough categories are discernible:

- insurance derivatives and credit and surety insurance;
- insurance-like securities that are perceived as insurance but in fact are not; and
- refinancing.

These categories warrant further consideration and definition. They also need to be constantly updated, since the capital markets and insurers are known for their innovation.

In general, capital markets activities need to be regulated and supervised appropriately and, where necessary, separately from insurance. The proven traditional actuarial methods that form part of the insurance sector's core competence have, if any, only limited applicability. Furthermore, different accounting treatments apply. Although all risks should be captured in the SST, financial market risks and insurance risks follow different rules: different factors will apply to correlations and diversification, with the distinction between idiosyncratic and systemic risk being of major significance. The incorporation of risk calculations for authorised capital markets activities in the SST is a crucial step

professional directors provided by an administration company to ensure that there is no connection with the sponsor." [UN,1].

¹⁸³ Cf. also the Financial Conglomerates Directive (FCD) [EU,2].

¹⁸⁴ Requirements for capital adequacy and, where prescribed by law, tied assets necessarily limit the return on equity in the insurance sector. This means that certain expectations regarding return on equity are at best attainable only by deviating from traditional insurance business. Such deviations inevitably entail higher levels of risk.

¹⁸⁵ Including financial guarantee insurance and performance bonds.

¹⁸⁶ Also synthetic CDOs, whose underlyings are CDSs.

towards protecting policyholders and preventing sector arbitrage. The three aforementioned categories are expanded on below.

5.3.2.1 Insurance derivatives and credit and surety insurance

Insurance derivatives and credit and surety insurance are insurance products in the broadest sense. ILSs/ILWs are useful for the insurance sector: risk securitisation (ILS) or risk hedging (ILW) serve for the purpose of risk management of insurance companies. They provide capital relief and sometimes an alternative to reinsurance. Unlike securitisations in the banking sector¹⁸⁷, however, they do not relieve insurers of their obligations to policyholders, which is why ILSs are not to be equated with ABSs. Nevertheless, securitisation conceals the risk of deterioration in underwriting discipline also in the insurance sector.

Regulation and supervision of the securitisation of insurance risks should look to regulatory innovations in banking for inspiration, while noting and preserving the particularities of the insurance sector. This applies most notably to the adequate warehousing of risks and the need to make systematic allowance for such risks when managing risk and liquidity.

Regulation and supervision of credit and surety insurance should take greater account of its particularities and dependence on the economic cycle. In credit insurance, the main factor is the underlying credit default risk. In surety insurance, it is the sequential triggers and their interplay, notably failure in the performance of a contractual obligation and assessment of the downstream impact on creditworthiness.

5.3.2.2 Insurance-like securities

These products are not insurance instruments, even if some of them, especially options, are commonly perceived as such: they do not involve a transfer of risk. For instance, CDSs are settled in cash and not necessarily by physical delivery (of the reference obligor), with different accounting treatments applying.

The practice of hedging credit defaults in insurers' investment portfolios with CDSs, which are acquired by the insurer as protection buyer, is justified as part of efficient and prudent asset management. The sale of CDSs as protection seller and other investment strategies¹⁸⁸ are regulated by supervisory law¹⁸⁹, provided they are carried out by an insurance entity. By analogy, the same is true for CDOs.

As a general rule, the insurance sector should not engage in any other activities and products that are not directly required for efficient investment management. The banking sector, which has the requisite

¹⁸⁷ Asset-backed securities used as a general term.

¹⁸⁸ Purchase of naked CDSs without holding the underlying (or reference entity), so-called corporate bond-CDS negative basis trades, etc. In general, developments in the regulation of CDSs should be closely monitored, e.g. [JF,1: no. IV(E), pp. 9—11].

¹⁸⁹ Cf. Art. 100 ISO for all insurers and, where applicable, FINMA Circular 2008/18 "Investment Guidelines for Insurers" [[→](#)].

capacity, already offers such products. It is hard to see how value is added by insurance companies offering the same products. Conversely, an examination of the financial crisis of 2007-09 gives the impression of sector arbitrage¹⁹⁰ and these products may lead to a significantly more interconnected financial sector. This is especially evident during a crisis, when cross-sector correlations tend towards 100%. The AIG case highlights the fact that under certain circumstances such non-insurance functions could force the rescue of an insurance group to safeguard financial stability. Considering the relatively minor significance of non-insurance functions for the insurance sector, this is hard to justify. This point of view also applies to credit enhancements.

5.3.2.3 Refinancing

Refinancing is as much a business-relevant activity for insurers as for other companies. The key concern here is the scale of refinancing activities and the degree of asset-liability mismatching. In this regard, certain refinancing principles need to be defined.

An insurer's refinancing policy should be geared to its core business: its principal source of funding should be insurance premiums. This is in line with the traditional insurance model¹⁹¹. Likewise, an insurer's overall balance sheet should reflect its core business. Assuming such business is not prohibited, any insurer that engages, for instance, in leveraged investment programmes (ABCPs or other positions) accounting for more than, e.g. 10% of its balance sheet, requires dedicated supervision owing to the sheer scale of these treasury activities. Regulation of refinancing in the insurance sector can be based only marginally on existing bank regulation¹⁹². However, liquidity requirements may offer a viable solution.

5.4 Measures regarding group structure

The SST¹⁹³ exposes the capitalisation of every significant legal entity or cluster of legal entities in the group. Provided the requirements are fulfilled, this is essential for the insurance group's stability. If, however, upheavals are experienced within the group to such an extent that they result in the failure of another entity, an orderly resolution at international level would be of particular importance. At present, ring-fencing of the affected legal entities may safely be assumed to be the only crisis response available to the local supervisory authorities. But without an international resolution scheme, the focus is bound to be on ring-fencing legal entities to protect policyholder interests. This measure prevents the relocation of capital and assets, in particular those set aside to cover technical provisions.

The foreseen FINMA Circular "Risk Situation of Insurers" addresses the assessment of the risk situation, including risk concentrations and accumulations, of Swiss-supervised insurers and insurance groups, and the compilation of its results. Here, too, both the granular and consolidated approaches set out in the SST are applied when identifying, assessing and reporting risks and risk concentrations, so as to convey the most balanced group assessment possible. Liquidity requirements should provide

¹⁹⁰ Cf. also [TAVJ,1], in general and on the role of the US monoliners in marketing CDSs and CDOs.

¹⁹¹ Cf. the analogy with a leveraged investment fund in [SR,5].

¹⁹² Cf. for instance Art. 21—44 FINMA Circular 2010/2 "Repo/SLB" [[→](#)].

¹⁹³ Cf. granular and consolidated group models in FINMA Circular 2008/44 "SST" [[→](#)], especially Annex 2, mn. 6.

a useful addition to the regulatory instruments, especially with regard to group resolution. The relations within a group and the internal flows of capital and liquidity are influenced and distorted by intra-group transactions, which is why the latter need to be modelled and regularly reviewed¹⁹⁴.

Other measures relate to international co-ordination of group supervision, e.g. the formation of so-called supervisory colleges, and to group entities that are either regulated differently or not at all. All such measures, and any ongoing studies, should ideally be pursued at international level, via the IAIS and the Joint Forum [JF,1: no. IV(B), pp. 7—8]. Since the only way to achieve the desired orderly international resolution and to prevent sector arbitrage is through internationally co-ordinated requirements, Switzerland should take no unilateral action in these areas, save perhaps to introduce bridging measures.

Supervisory colleges, in which Switzerland plays a pioneering role, must be further developed and strengthened as required. Supervision of international insurers presupposes an international supervisory regime that takes due account of global developments and can override local regulations if the financial situation so requires.

Non-regulated legal entities should not feature in the group context¹⁹⁵; at least, no indefinite or uncaptured risks should emanate from them. This applies both to the function performed by holding companies in managing capital (and possibly liquidity) within insurance groups and to undertakings in capital markets and the real economy which should be regulated and supervised in a business-specific manner. The solvency of insurance groups must not be endangered by non-insurance business. The measures discussed above, especially those relating to banking and capital markets activities, are important, because the danger of contagion is evident. The resilience of the insurance sector must not be impaired or destroyed by uncontrolled convergence within the financial sector [BELA, 1] [WEF, 1].

¹⁹⁴ Cf. FINMA Circular 08/29 "Intra-Group Transactions in Insurance Groups" [[→](#)].

¹⁹⁵ Cf. [JF, 1: no. IV(B), pp. 7—8].

6 Bibliography

The following sources are largely available without restriction, the majority of them being on the internet. The internet links provided were viewed at the time of writing. References to Swiss insurance legislation have been provided in English and German. Since English is not an official language of the Swiss Confederation, insurance legislation is often only available in the Swiss national languages.

- [AIG,1] AIG, Annual Report 2007, February 2008. [[→](#)]
- AVO Aufsichtsverordnung (SR 961.011), 09.11.2005, status: 01.01.2009. [[→](#)] (see ISO)
- [BELA,1] Andrea Beltratti, Giuseppe Corvino, Why are Insurance Companies Different? The Limits of Convergence Among Financial Institutions, in *The Geneva Papers*, 2008:33(3), pp. 363—388. [[→](#)]
- [BEND,1] Itzhak Ben-David, Manipulation of Collateral Values by Borrowers and Intermediaries, Fisher College of Business, Charles A. Dice Center for Research in Financial Economics, The Ohio State University, February 2009.
- [BERR,1] Todd Bault et al., Bernstein Research, Unlearn What You Have Learned: Post-Cycle Investing in Non-Life Insurance, Sanford C. Bernstein & Co., August 2004.
- [BIS,1] Study Group established by the Central Banks of the Group of Ten Countries, Recent Innovations in International Banking, BIS, April 1986. [[→](#)]
- [CEA,1] Comité Européen des Assurances, Solvency II: CEA Key Messages on Level 2 Implementing Measures, 12.03.2010. [[→](#)]
- [CH,1] Swiss Federal Council, Communication (03.035) on the proposed law on supervision of insurance companies (Insurance Supervisory Act, ISA) and on the proposed amendment to the federal law on insurance contracts, 09.05.2003. [[→](#)]
- [CL,1] Clariden Leu, Credit Markets: Surviving the subprime debacle, ahead, Issue 4, September 2007, pp. 25—26. [[→](#)]
- [CULC,1] Christopher L. Culp, *Structured Finance and Insurance*, John Wiley & Sons, 2006.
- [CUMJ,1] J. David Cummins, Do Insurance Companies Pose Systemic Risk?, 03.12.2009, at NAIC Winter 2009 National Meeting. [[→](#)]
- [ECB,1] Jean-Claude Trichet, ECB, Insurance companies, pension funds and the new EU supervisory architecture, 18.11.2009, at CEIOPS Conference 2009. [[→](#)]
- [EFD,1] Press release issued by the Federal Department of Finance: Federal Council appoints Commission of Experts to address the "too big to fail" issue, 04.11.2009. [[→](#)]
- [EFD,2] Commission of Experts on Limiting the Economic Risks Posed by Large Companies, interim report, 22.04.2010. [[→](#)].

- [EFD,3] Commission of Experts chaired by Prof. Jean-Baptiste Zufferey, Financial Market Regulation and Supervision in Switzerland: Banks, Insurers, Bancassurance Companies and Financial Conglomerates, other Financial Service Providers (transl.), November 2000. [[➔](#)]
- Sections of particular relevance to the insurance sector and its potential systemic relevance: no. 312, no. 322 (esp. 322.1 and 322.3), no. 331, no. 332, Annex 1 no. 4, Annex 3 no. 12, 13 and 17, Annex 4 no. 13, 21—25 and Annex 5 no. 2 and 3.
- [EFD,4] Commission of Experts chaired by Prof. Ulrich Zimmerli, Third Partial Report: Expanding Prudential Supervision (transl.), Follow-up to the Final Report by the Financial Market Supervision Group of Experts (Zufferey Report), February 2005. [[➔](#)]
- [EFD,5] FFA, FINMA (involved at the time: FBC and FOPI), Guidelines for Financial Market Regulation: The requirements for a reasonable, cost-conscious and effective regulation of the financial market, September 2005. [[➔](#)]
- [EFD,6] FFA et al., The Swiss Financial Centre: Key Figures, December 2009. [[➔](#)] (June 2010 update)
- [ER,1] Penny Cagan, ERisk Case Study: HIH Insurance, Sungard/Ambit ERisk, November 2001. [[➔](#)]
- [EU,1] EU Directive 1998/78/EC (Insurance Groups Directive) of the European Parliament and the EU Council of 27 October 1998 regarding additional supervision of insurance companies belonging to insurance groups. [[➔](#)]
- [EU,2] EU Directive 2002/87/EG (Financial Conglomerates Directive) of the European Parliament and the Council of 16 December 2002 regarding additional supervision of credit institutions, insurance companies and securities firms belonging to financial conglomerates and amending Council Directives 73/239/EEC, 79/267/EEC, 92/49/EEC, 92/96/EEC, 93/6/EEC and 93/22/EEC and Directives 98/78/EC and 2000/12/EC of the European Parliament and the Council. [[➔](#)]
- [EU,3] EU Directive 2009/138/EC of the European Parliament and the Council of 25 November 2009 regarding the commencement and exercise of insurance and reinsurance activities (Solvency II), 25.11.2009, in the Official Journal of the European Union, No. L335, 17.12.2009, pp. 0001—0155. [[➔](#)]
- [EU4,] CEIOPS, CEIOPS Roadmap on Convergence for 2009, March 2009, ref.: CEIOPS-ConCo-06/09. [[➔](#)]
- [EU,5] EU, Report on the crisis of the Equitable Life Assurance Society, 23.05.2007. [[➔](#)]
- [FINMA,1] FINMA, Governance, Risk Management and Internal Controls at Swiss Insurers: Observations from the first Swiss Qualitative Assessment, 01.02.2010. [[➔](#)]
- FINMAG Finanzmarktaufsichtsgesetz (SR 956.1), 22.06.2007, status: 01.01.2009. [[➔](#)] (see FINMASA)

- FINMASA Financial Market Supervision Act(SR 956.1), 22.06.2007, status: 01.01.2009. [[→](#)]
- [FSAUK,1] Adair Turner, Mansion House Speech, 22.09.2009. [[→](#)]
- [FSB,1] BIS, FSB, IMF, Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations - Background Paper, Report to the G-20 Finance Ministers and Central Bank Governors, 28.10.2009. [[→](#)]
- [G-20,1] G-20 Governments, Washington Declaration, 15.11.2009. [[→](#)]
- [GA,1] Mark Tucker, Patrick M. Liedtke, The Geneva Association, Letter to the Finance Ministers of the G-20 Governments, 30.03.2009. Press release: [[→](#)]. There was a follow-up letter in November 2009. Press release: [[→](#)].
- [GA,2] The Geneva Association, Systemic Risk in Insurance—An analysis of insurance and financial stability, March 2010. [[→](#)]
- [HARS,1] Scott E. Harrington, The Financial Crisis, Systemic Risk, and the Future of Insurance Regulation, in Issue Analysis (NAMIC), September 2009. [[→](#)]
- [IAIS,1] IAIS, Systemic Risk and the Insurance Sector, 25.10.2009. [[→](#)]
- ICA Insurance Contract Act (SR 221.229.1), 02.04.1908, status: 01.07.2009. [[→](#)]
- ISA Insurance Supervision Act (SR 961.01), 17.12.2004, status: 01.01.2009. [[→](#)]
- ISO Insurance Supervision Ordinance (SR 961.011), 09.11.2005, status: 01.01.2009. [[→](#)]
- [JF,1] The Joint Forum, Review of the Differentiated Nature and Scope of Financial Regulation: Key Issues and Recommendations, Draft, 27.10.2009. [[→](#)]
- [JT,1] The Japan Times, Insurers Finalize Nissan Mutual Liquidation Scheme, 20.06.1997. [[→](#)]
- [JT,2] The Japan Times, Nissan Mutual Customers Vent Anger, 08.09.1997. [[→](#)]
- [JR,1] Lutz Johanning and Bernd Rudolph (publ.), Handbuch: Risikomanagement, Uhlenbruch, 2000.
- [KELP,1] Philipp Keller, Some comments on the illiquidity premium, Swiss Actuarial Association, March 2010. [[→](#)]
- [LIEP,1] Patrick M. Liedtke, What's Insurance to a Modern Economy?, in The Geneva Papers, 2007:32(2), pp. 211—221. [[→](#)]
- [LOWR,1] Roger Lowenstein, When Genius Failed: The Rise and Fall of Long-Term Capital Management, Random House, September 2000.
- [MM,1] Manager Magazin, Mannheimer: Erster Fall für den "Protector", 26.06.2003. [[→](#)]
- [MM,2] Manager Magazin, Unterversichert, 01.05.2003. [[→](#)]

- [NZZ,1] NZZ, Die Finanzkrise: Erklärungen für Leute, die sich nicht für Wirtschaft interessieren, NZZ Folio, Januar 2009. [[→](#)]
- [SAUJ,1] Jesús Saurina, Dynamic Provisioning: The experience of Spain, Crisis Response, Public Policy for the Private Sector, The World Bank, Note Number 7, July 2009. [[→](#)]
- [SPIE,1] Beat Balzli, Klaus Brinkbäumer, et al., Im Hauptquartier der Gier, in Der Spiegel, 2009:29, pp. 42—59. [[→](#)]
- [SR,1] Swiss Re, Reinsurance - a systemic risk?, Sigma, No. 5, 2003. [[→](#)]
- [SR,2] Swiss Re, The Run-Off Phenomenon: Extracting Value from Discontinued Business, 2000. [[→](#)]
- [SR,3] Swiss Re, Insurance-Linked Securities, 2004. This publication is out of print. By way of alternative, refer to: Swiss Re, Securitization - new opportunities for insurers and investors, Sigma, No. 7, 2006. [[→](#)]
- [SR,4] Swiss Re, Asset-liability management for insurers, Sigma, No. 6, 2000. [[→](#)]
- [SR,5] Paul Huber et al., The economics of insurance: How insurers create value for shareholders, Swiss Re, September 2002. [[→](#)]
- [SR,6] Swiss Re, Pandemic influenza: A 21st century model for mortality shocks, 2007. [[→](#)]
- [TAVJ,1] Janet Tavakoli, Beware of Geeks bearing Grifts, in Risk Professional, Global Association of Risk Professionals, December 2009. [[→](#)]
- [TGT,1] The Group of Thirty, Reinsurance and International Financial Markets, 2006. [[→](#)]
- [UN,1] United Nations, Economic and Social Council, The treatment of special purpose entities, ECE/CES/GE.20/2010/13, 15.02.2010. [[→](#)]
- VAG Versicherungsaufsichtsgesetz (SR 961.01), 17.12.2004, status: 01.01.2009. [[→](#)] (see ISA)
- [VOLP,1] Paul Volcker, How to reform our financial system: Reform of the financial system can do away with the concept of 'too big to fail.', in Herald International Tribune Europe, 01.02.2010. [[→](#)]
- VVG Versicherungsvertragsgesetz (SR 221.229.1), 02.04.1908, status: 01.07.2009. [[→](#)] (see ICA)
- [WEF,1] WEF, Convergence of Insurance and Capital Markets, 2008.
- [WEMD,1] Dieter Wemmer, The Securitization of Insurance Liabilities: The View from Zurich, in The Geneva Papers, 2008:33(1), pp. 1—6. [[→](#)]
- [ZFS,1] Zurich Financial Services, Insurance and Stability: The Reform of Insurance Regulation, 2009. [[→](#)]

Annexes

7 List of abbreviations

ABS	Asset-Backed Security
ABCP	Asset-Backed Commercial Paper
ADC	Adverse Development Cover
AIG	American International Group
ALM	Asset-Liability Management or Matching
AMBAC	American Municipal Bond Assurance Corporation
APH	Asbestos, Pollution and health Hazards
APRA	Australian Prudential Regulation Authority
ART	Alternative Risk Transfer
AVO	Aufsichtsverordnung (English: ISO)
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial Supervisory Authority, Germany)
BAG	Bundesamt für Gesundheit (English: FOPH)
BBB	Bankers' Blanket Bond
BPV	Bundesamt für Privatversicherungen (English: FOPI)
BVG	Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge (English: LOB)
CD	Certificates of Deposit
CEA	Comité Européen des Assurances
CEIOPS	Committee of European Insurance and Occupational Pensions Supervisors
CDS	Credit Default Swap
CDO	Collateralised Debt Obligation
CP	Commercial Paper
D&O	Directors' and Officers' liability insurance
E&O	Errors and Omissions liability insurance
EBK	Eidgenössische Bankenkommision
ECB	European Central Bank
EFD	Eidgenössisches Finanzdepartement (English: FDF)
EFV	Eidgenössische Finanzverwaltung (English: FFA)
EU	European Union
EXT	Exchange-Traded
FCD	Financial Conglomerates Directive
FDIC	Federal Deposit Insurance Corporation
FDF	Federal Department of Finance
FFA	Federal Finance Administration
FINMAG	Finanzmarktaufsichtsgesetz (English: FINMASA)
FINMASA	Financial Market Supervision Act
FBC	Federal Banking Commission
FOPH	Federal Office of Public Health
FOPI	Federal Office of Private Insurance

FSA UK	Financial Services Authority of the United Kingdom
FSA JP	Financial Services Agency of Japan
FSB	Financial Stability Board
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GDV	Gesamtverband der Deutschen Versicherungswirtschaft (German Insurance Association)
GIC	Guaranteed Income Contracts
HIH	Heath International Holdings (in: HIH Insurance)
IAIS	International Association of Insurance Supervisors
IFRS	International Financial Reporting Standards
ICA	Insurance Contract Act
ISA	Swiss Insurance Supervision Act
ISO	Swiss Supervision Ordinance
IGD	Insurance Groups Directive
IGR	Intra-Group Retrocession
IGT	Intra-Group Transaction
ILS	Insurance-Linked Security
ILW	Industry Loss Warranty
ING	Internationale Nederlanden Groep
IPA	Insurance Policy Act
ISA	Insurance Supervision Act
ISDA	International Swaps and Derivatives Association
LMX	Lloyd's London Market Excess of Loss
LOB	Law on the Occupational Old-Age, Survivors and Disability Benefit Plan
LPT	Loss-Portfolio Transfer
LTCM	Long-Term Capital Management
MBIA	Municipal Bond Insurance Association
MBS	Mortgage-Backed Security
MTN	Medium Term Note
NAIC	National Association of Insurance Commissioners
NAMIC	National Association of Mutual Insurance Companies
NIF	Note Issuance Facility
NML	Nissan Mutual Life
OTC	Over The Counter
PCDS	Portfolio Credit Default Swap
RBC	Risk-Based Capital
S&L	Savings & Loan
SEC	Securities and Exchange Commission
SIA	Swiss Insurance Association
SLB	Securities Lending and Borrowing
SNB	Swiss National Bank
SPE	Special-Purpose Entity
SPV	Special-Purpose Vehicle
SQA	Swiss Quality Assessment
SST	Swiss Solvency Test

SVV	Schweizerischer Versicherungsverband (English: SIA)
TBTF	Too Big To Fail
TBTR	Too Big To Rescue (or: Too Big To Be Rescued, TBTBR)
TCTF	Too Complex To Fail
TITF	Too Interconnected To Fail
TRS	Total Return Swap
VAG	Versicherungsaufsichtsgesetz (English: ISA)
VIE	Variable-Interest Entity
VVG	Versicherungsvertragsgesetz (English: ICA)
WEF	World Economic Forum
ZFS	Zurich Financial Services

8 Case studies

8.1 ACE and XL Capital

In the wake of the US property and casualty insurance crisis of 1985-86, corporations found themselves obliged to self-finance their risks for around one year. They then formed insurance mutuals to which they transferred their liability risks, including new asbestos, pollution and health hazards (APH) business. The subsequent sale of these co-operatives gave rise to now-familiar names, such as ACE¹⁹⁶ and XL Capital¹⁹⁷.

8.2 Converium

Disappointing results prompted Zurich Financial Services, which had been restructured in 2000, to spin off its reinsurance business (Zurich Re) into Converium Holding AG in December 2001. At the time, the insurance liabilities involved were deemed to have been valued properly, but subsequently proven to have been undervalued. This led to inadequate loss reserves¹⁹⁸ and Converium to exit the US market. In 2007, Converium was taken over by SCOR. Since the need to put up additional reserves affected only Converium, other Swiss reinsurers made their positions publicly known to distance themselves from the Converium example and to prevent the loss of confidence from spreading throughout the Swiss reinsurance sector.

8.3 Equitable Life

Equitable Life was established in the United Kingdom in 1762, making it the oldest co-operative life insurance company in the world. The basics of modern life insurance were developed at Equitable Life, in particular the use of mortality rates in determining age-related premiums.

In 1950, Equitable Life began to sell life policies with guaranteed rates. Although it discontinued these products in 1988, falling interest rates in the 1990s proved the company's downfall: payments on maturing guaranteed-rate policies exceeded the premium balance and the firm's ability to pay. Equitable Life managed 1.5 million policies with GBP 26 billion in assets when it went into run-off in December 2000 and was forced to cut anticipated pay-outs to policyholders in order to avoid insolvency. Cuts in annual rates amount to approximately 16%. Clients who took out their policies shortly before the announcement that Equitable Life was in trouble suffered cuts of up to 40% of the promised annual rates.

¹⁹⁶ "ACE was established in 1985 by 34 founding sponsors to provide hard-to-find excess liability and directors and officers coverage. Since then, ACE has evolved from a monoline excess insurer owned by its policyholders to a global publicly-traded insurance company and one of the world's leading providers of commercial property and casualty insurance and reinsurance." [[➔](#)].

¹⁹⁷ "XL Insurance originated as Exel Ltd., which was started by a group of corporate customers who needed high limits of capacity during a crisis in the liability insurance market. This new company enabled its customers - and founders - to continue to do business responsibly, despite the difficult conditions." [[➔](#)].

¹⁹⁸ Of interest in this context is the investigation 2008-292 undertaken by the Securities and Exchange Commission (SEC) [[➔](#)].

Equitable Life is a good example of how policyholders can incur considerable detriment without any significant knock-on effect on the financial system or the wider economy and without a forced state intervention. However, an investigation by the EU Parliament in 2007 [EU,5: pp. 303—304] called for compensation from the state. It identified a series of failures, in particular with regard to the ineffective implementation of EU supervisory law in the member states (in this case the UK), as well as shortcomings on the part of the then newly established FSA UK.

8.4 HIH

Heath International Holdings (HIH), the Australian insurer with extensive British roots, has been in liquidation since 27 August 2001. The liquidator's website [[→](#)] regularly supplies information on the status of the resolution process, which is projected to take around 10 years, partly in order to protect the interests of holders of long-term policies. The company's difficulties obliged the state to intervene, not least with AUD 1 billion, to ensure the company could actually be resolved. But with losses estimated at AUD 5.3 billion, the assumption is that policyholders and creditors will not recoup their money. The international resolution is further hampered by the fact that Australian and English insolvency laws are both applicable.

The company managed around 2 million policies with approximately AUD 7.8 billion in assets. Measured by the size of its balance sheet, it was one of the largest firms operating in Australia. But measured by its book value of around AUD 133 million, it was a case for insolvency. It had more than 200 subsidiaries engaging primarily in non-life business, including workers' compensation, long-tail risks in general, and reinsurance.

There are numerous reasons why HIH Insurance failed [ER,1]. In short, many mistakes were made: inaccurate actuarial assumptions which led to insurance products being underpriced and not cost-covering, and poorly conducted due diligences which led to the overpriced acquisition of struggling insurance targets. The executive management at HIH Insurance was accused of fraud and other offences, found guilty and imprisoned, while the country's supervisor, the Australian Prudential Regulation Authority (APRA), was accused of negligence.

The size of the loss in this case is remarkable. Prices in those lines of business in which HIH Insurance held a substantial market share have risen. In comparison with the other case studies, this particular case reveals a strong element of fraud.

8.5 Lloyd's of London

Private individuals known as Lloyd's Names take part in the Lloyd's of London insurance market through a number of different Lloyd's syndicates. The destruction of the Piper Alpha oil rig by fire in 1988 laid bare a retrocession spiral within entangled syndicates, giving the impression that large amounts at risk in major projects could actually be borne. Until the claim was processed in 1992-93, the Names ignored which projects they were in fact underwriting. The syndicates had to write off multiples of the total loss. The Lloyd's market was likewise heavily involved in the 1990 winter storms Daria, Herta, Vivian and Wiebke and in APH business.

On the website of the American Names Association¹⁹⁹, the LMX market is described as a Ponzi scheme or snowball system: "Lloyd's London Market Excess of Loss (LMX) syndicates started the practice of reinsuring other LMX syndicates, and then declaring large profits. This reduced the funds available to pay losses, in some cases by up to 70%, while the brokers made fortunes from commissions on each transaction. Lloyd's, which should have prevented this spiral, took no action. This activity gave the illusion of there being an increase in Lloyd's overall business, which used up market capacity from new Names, and allowed Lloyd's to recruit even more Names."

Since then, Lloyd's of London has adopted stricter underwriting rules, also applicable to the Names. The Names are now more aware of insurance risks and the underwriting and claim settlement procedures.

8.6 Mannheimer

Founded in 1879, Mannheimer Versicherungsgesellschaft²⁰⁰ (Mannheimer Insurance Company) began as a transport insurer. Over time it branched out, initially into other areas of the core business of property insurance, such as accident and third-party liability, and then in 1923 into life insurance with the acquisition of Kronos Deutsche Lebensversicherungsbank. The company known as Mannheimer Lebensversicherung (Mannheimer Life Insurance) grew out of these life insurance operations.

In 2002-03 Mannheimer Lebensversicherung ran into difficulty as a result of risky speculations in shares²⁰¹. The Gesamtverband der deutschen Versicherungswirtschaft (GDV, German Insurance Association) and Germany's Federal Financial Supervisory Authority (BaFin) sought to limit the damage done to the image of life insurance products. Their joint effort to come to a solution²⁰² within the private sector failed. Instead, a fall-back solution proved necessary: more than 300,000 policies with an estimated EUR 3 billion in assets were transferred to the newly founded Protektor Lebensversicherung. At the same time, the Austrian insurance company UNIQA acquired more than 75% of the shares of Mannheimer Holding. Protektor Lebensversicherung is the official receiving company for the German life insurance sector.

"Mannheimer Leben clients will not be disadvantaged, according to BaFin and the GDV. 'Protektor is a BaFin-licensed life insurance company funded by the entire sector, with over five billion Euros at its disposal', as stated by BaFin, adding that Protektor is able to secure the continuity of policies taken out with insurers. The GDV view is that only a fraction of that five billion Euros will be needed by Mannheimer Leben." [MM,1 (transl.)].

Protektor Lebensversicherung was set up at the end of 2002 under the auspices of the GDV. All German life insurers had then undertaken to contribute, if necessary, a total of up to 1% of their net

¹⁹⁹ Cf. American Names Association on the web [→]. (This website no longer appears to be permanently active; check out this page [→] of the UK parliament.)

²⁰⁰ Not to be confused with Hamburg Mannheimer Versicherung.

²⁰¹ Cf. also "And the new head of Allianz admitted it: 'We were too ill-disciplined in our normal operations, we expanded our activities too far, and we made ourselves over-dependent on the stock market.'" [MM,2 (transl.)].

²⁰² I.e. takeover by another insurer.

provisions to ensure that, in an emergency, policyholders of struggling insurers receive at least the guaranteed benefits to which they are entitled. Details can be found on the Protektor Lebensversicherung website [[→](#)]. Like any other German insurer, Protektor Lebensversicherung is subject to supervision by BaFin.

8.7 Nissan Mutual Life

The company, with its 1.2 million policies and approximately JPY 2,000 billion in assets under management, sold individual annuities paying a guaranteed interest of around 5%, without hedging. When yields on government bonds fell to a record low, a gap formed between the interest that Nissan Mutual Life promised to pay out and the interest it received on its own investments. In 1997, NML's operations were suspended by the Japanese Finance Minister and the FSA JP. Losses after resolution amounted to JPY 300 billion, of which one-third had to be borne by the policyholders and the remaining two-thirds were provided by the private sector. Aoba Life Insurance, newly established by the Life Insurance Association of Japan, ran off the portfolio of policies of the insolvent NML. Since 1999, Aoba Life Insurance has belonged to the corporate portfolio of the French holding company Artémis (François Pinault). The corporate portfolio of Artémis also includes Aurora Life (formerly Executive Life), which itself was a distressed company²⁰³.

NML is a classic example of an insurer re-entering the market following temporary insolvency and a successful restructuring phase (recovery)²⁰⁴.

A great many lessons can be learned from recent developments in Japan's insurance, and especially its life insurance sector: management of insurance companies under conflicting constraints and market conditions, guaranteed benefits (interest) and resolution of insurance companies. An overview can be gained by reading [JT,1] and [JT,2].

²⁰³ The Executive Life investment portfolio was largely invested in high-yield (junk) bonds. In portfolio structuring terms, this resulted in a clear overallocation. It led to fire sales of investment positions and the insurer's temporary insolvency.

²⁰⁴ Cf. also [LIEP,1: p. 216].

9 Scenario Synopses

Explanatory comments on the scenario synopsis tables:

	Causes	Non-exhaustive list of possible causes that may give rise to the consequences and potentially negative externalities that are considered. Causes are mentioned to help make the scenario more concrete. They can be endogenous or exogenous in origin. The causes are often mistakenly equated with the consequences.
▼	Symptoms picked up by supervisory regime	Possible symptoms by which the existence of the causes may be identified in time by the supervisory regime. If they are not, then that in itself is an indication of shortcomings in the supervisory regime.
▼	Mitigation or remedy	Prompt identification of the symptoms provides an opportunity to take both corporate and supervisory measures. These measures supplement the existing, intrinsic crisis-resistant aspects of the insurance sector. They serve as a safety net, preventing the consequences from materialising.
▼	Consequences / negative externalities	The consequences and potentially negative externalities to be examined for the presence of systemic risks.
▼	Measures by affected institution or insurance sector	The measures that individual insurers or the sector as a whole can take to mitigate or even avoid a crisis. Such measures should be effective enough to prevent the negative externalities and any chain reaction.
▼	Measures by affected clients	The measures that can be taken by clients, primarily by policyholders, to mitigate or even avoid the consequences of a crisis.
▼	Crisis measures by the authorities	The measures that must be taken by the supervisory authorities. Such measures should be effective enough to prevent negative externalities and any chain reaction. If not, the consequences pose a potential systemic risk.
▼	Evaluation	The consequences, and any negative externalities, are evaluated. Account is taken of the intrinsic resilience of the function, institution or insurance sector to such consequences, the likelihood of occurrence and the extent of the damage. The result is an evaluation of the associated systemic risk.
	Further supervisory requirements	Any additions or changes to the supervisory regime that are required. Even if no clear systemic risks are present, a need for further supervisory action may be identified in order to enhance the intrinsic resilience of insurance functions, institutions or the sector as a whole.