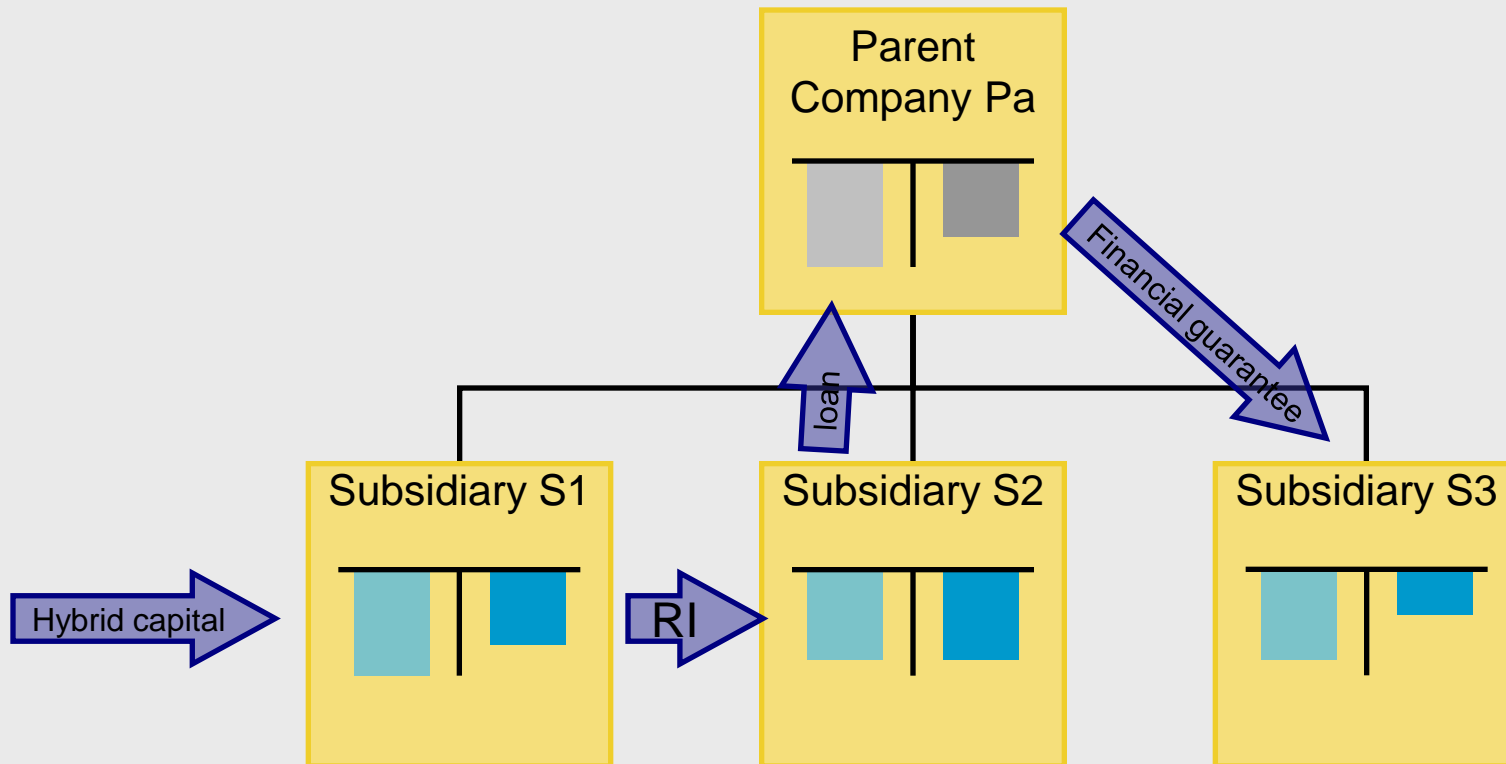


# Swiss Solvency Test (SST) for Insurance Groups

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14 May 2009

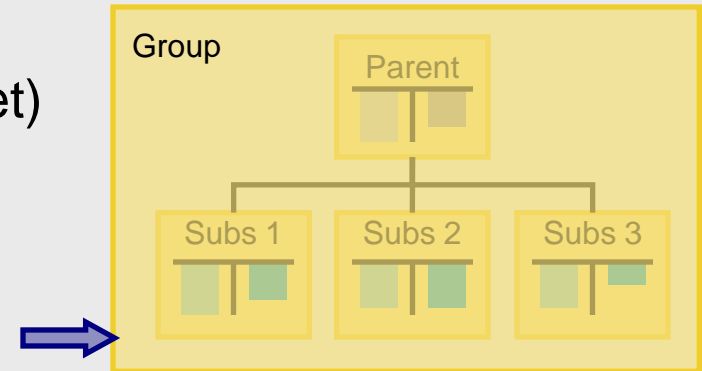
- Insurance Group: a Setup
- Consolidated Approach
- SST for Groups: a Legal Entity Approach
  - Intra Group Transactions
  - Group Support
  - Diversification



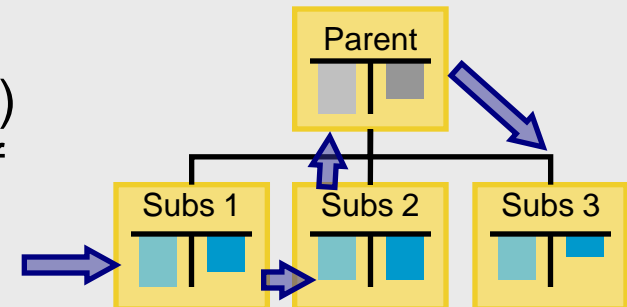
- A set of (at least two) legal entities bound by some type of ownership or control arrangement.
- At least one of the legal entities runs insurance operations.
- Intragroup interactions / transactions.

# Approaches to Group Solvency

1. Single Economic Entity Approach.  
(based on consolidated balance sheet)

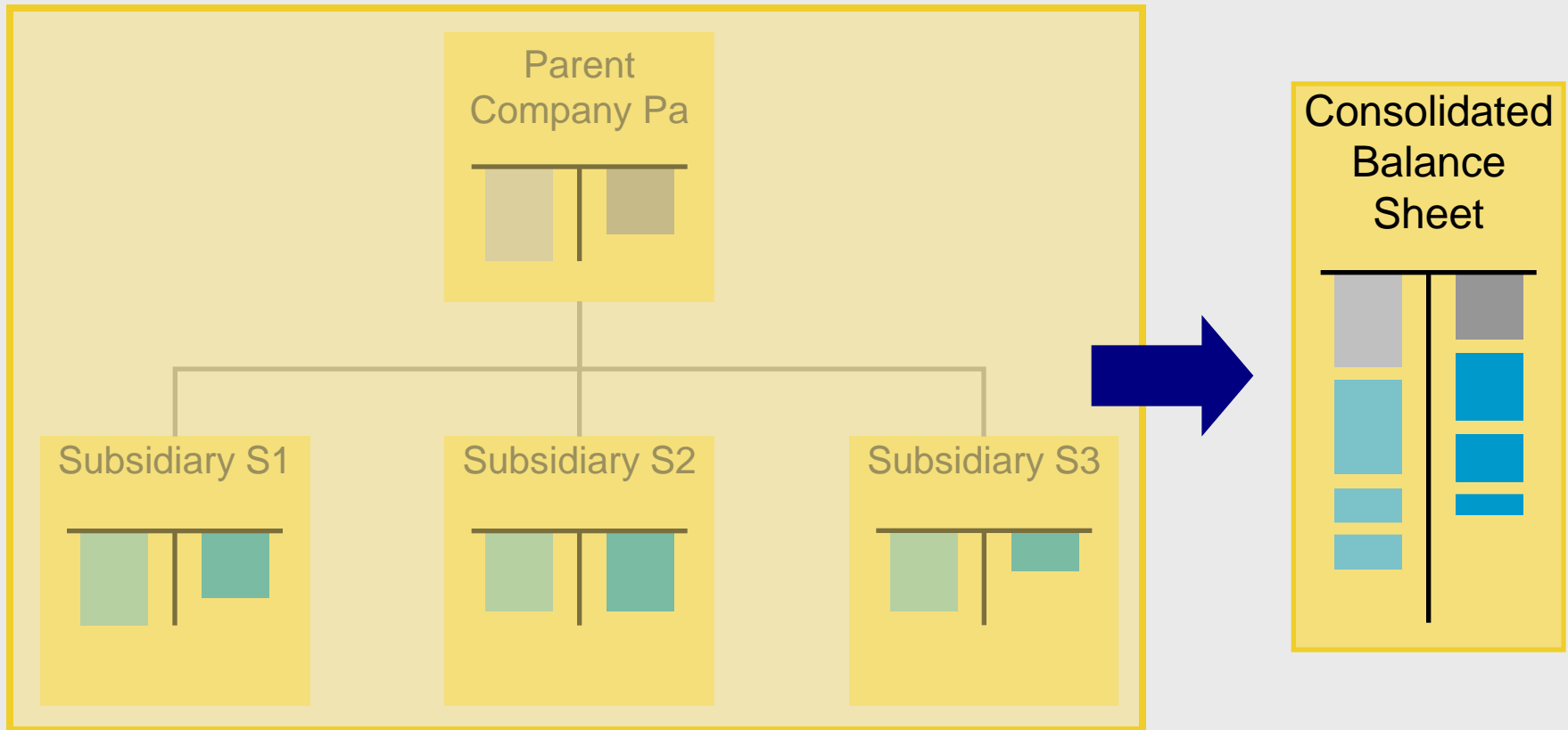


2. Legal Entity Approach.  
(≠ traditional solo approach, see below)  
Focus on legal entities in the context of the rest of the group.



3. Combinations of 1 and 2.

# Single Economic Entity / Consolidated Approach



- The consolidated balance sheet considers the group as one single economic entity.
- It is a list of all assets and liabilities ignoring where these positions are from.
- Intragroup transactions cancel out.

# Risk and Capital Measurement using a Pure Consolidated View

## Unlimited Fungibility and Transferability

- Assumes that any asset can legally be used to cover any loss.
- Assumes that top management is willing to use / spend any asset to cover any loss.
- Assumes that group acts as one single economic entity even in times of distress.

## Musketeer Approach

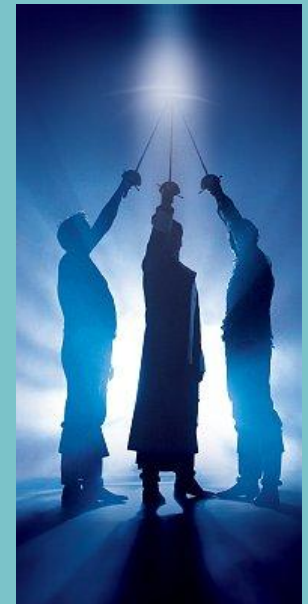
"One for all and all for one."

Assumes that either

- **all** legal entities or
- **no** legal entity

of the group are insolvent.

Typically, risk is measured and captured by *one single number* for the whole group.



In general, strong assumptions used by the consolidated view for risk management purposes are not met in practice:

- A group will support a subsidiary in distress only if this is preferable for the owners of the group.
- There are real life examples of failed groups and other near misses where some legal entities survived and others became bankrupt.
- External institutions such as rating agencies or regulators might prevent a group from injecting capital into an insolvent subsidiary.

Effects of intragroup transactions on individual entities is not captured.

**Therefore: The fact that the “overall” capital of a group is larger than the “overall” risk does not mean that all legal entities and their policyholders are protected on the intended and required level.**

Reason for major discussions about group support.

- It is not the responsibility of an insurance group but of individual legal entities to pay for claims of policyholders.
- The legal entity approach focuses on the risks (solvency capital requirement) and resources to take these risks (available financial resources) of **legal entities**.
- The existence of the group has an impact on individual legal entities. Therefore, for a comprehensive view, they have to be considered as members of the group instead as standalone entities like in a traditional solo view.

# SST for Groups: a Legal Entity Approach

- In the SST a group is not considered as one single economic entity.
- The SST considers all group members (i.e. the legal entities) individually but fully allowing for their mutual interactions. Effects of the group on individual entities are part of the model.
- This is why a legal entity approach is a group model. It is fundamentally more than a collection of traditional solo supervisions.

# SST for Groups: Result is more than one Number!

The group model has to determine available capital as well as required capital for each legal entity. That means for the example from previous slides:

Entity	Available Capital	Required Capital: SCR	Required Capital: MCR (*)
Parent	$AC_p$	$SCR_p$	$MCR_p$
Subsidiary S1	$AC_1$	$SCR_1$	$MCR_1$
Subsidiary S2	$AC_2$	$SCR_2$	$MCR_2$
Subsidiary S3	$AC_3$	$SCR_3$	$MCR_3$

(\*) only for Swiss entities.

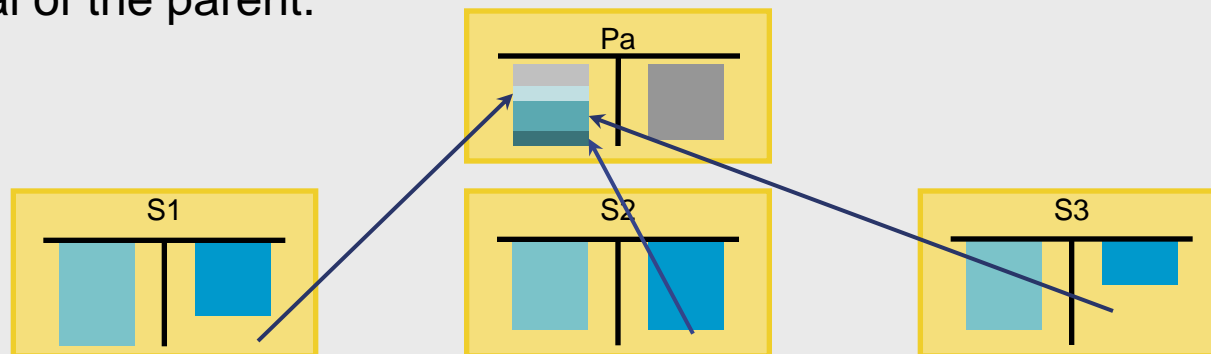
Since the group is not considered as one single entity, there is no need to determine an overall figure in the first place: there is no group SCR.

Nevertheless, under certain conditions groups can determine a group wide SCR or be asked for the calculation by FINMA.

# SST for Groups: Group Effects

When determining available capital and required capital of each legal entity, the effects from other group members have to be taken into account. These group effects are:

- Holding a subsidiary is regarded as holding an asset of the parent company. This asset has got a value (economic net asset value for SST purposes) and a risk, i.e. it contributes to the available capital and to the required capital of the parent.



- Effects from intragroup transactions on available capital and required capital have to be modelled. These effects are taken into account in the form of **capital and risk transfer instruments (CRTI)**.

**Capital and risk transfer instruments (CRTI)** in the SST are written and legally binding documents that define

- in which situation
- how much capital
- flows from whom to whom.

Examples of CRTI:

- Reinsurance agreements
- Financial guarantees
- Hybrid instruments
- Intragroup loans

The oral promise from a group CEO to support subsidiaries in distressed situations is not a CRTI.

- CRTI define the minimal possible support between group members. Depending on the precise situation the support may exceed that minimum.
- In the SST group support is taken into account to the extent it is defined by accepted CRTI.
- Usually **risk transfer instruments** impact much more on SCR than on available capital. They
  1. decrease the risk of one party (e.g. of a cedant or the receiver of a guarantee) and
  2. increase the risk of a second party (e.g. the “reinsurer” or the provider of a guarantee).

**Both sides (together with credit risk) have to be taken into account!**

# SST for Groups: Intra Group Creation of Capital?

The SST for groups does not try to eliminate effects of circular structures beforehand.

It is key that

- Transactions such as capital instruments are valued market consistently (apart from issue of own credit standing)
- The risks of changes in value of such instruments are properly considered in the risk model. In particular their credit risk has to be taken into account in the SCR calculation.

- Diversification is the effect that the risk of two objects/instruments is smaller than or at most equal to the sum of risks of the single objects:

$$\text{Risk (A + B)} \leq \text{Risk(A)} + \text{Risk(B)}$$

- The beneficiary of diversification is someone who is combining two objects (e.g. on its own balance sheet).
- Within a group there is diversification between different assets and liabilities.
- Who is the beneficiary of diversification within the group? In a legal entity approach the answer is straightforward:

# SST: Group Diversification for a Parent



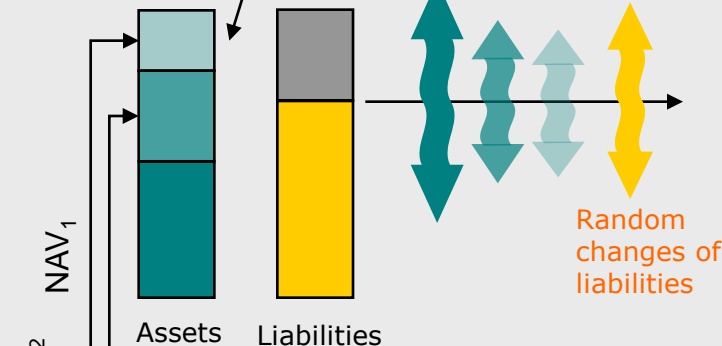
A parent company benefits from group diversification because:

Subsidiaries are considered as (risk borne) assets of a parent. There is diversification between these assets unless the values of all subsidiaries would move in parallel.

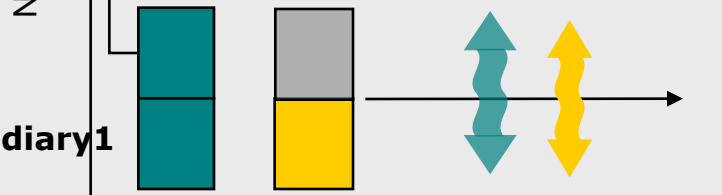
# SST: Group Diversification

The subsidiary's *economic net asset value* is an asset to the parent company

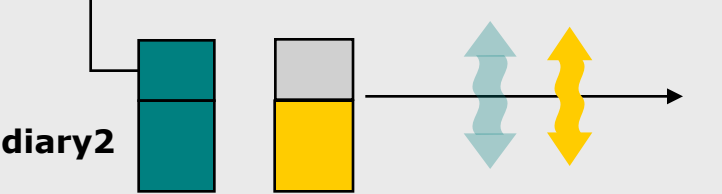
## Parent Company



## Subsidiary 1



## Subsidiary 2



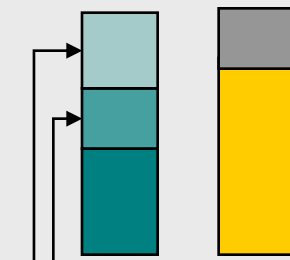
Economic balance sheet at  $t=0$   
(deterministic)

Random changes of the economic value of assets and participations

Random changes of liabilities


The *parent company* benefits from diversification since the random change of its assets and liabilities is not fully correlated to the changes of the economic net asset value of its participations


Parent's diversification is effected via the ownership relation between the parent and its subsidiaries



Economic balance sheet at  $t=1$   
(stochastic)

-  Assets
-  Available Capital of Subsidiary 1
-  Available Capital of Subsidiary 2
-  Liabilities

 Random changes of the economic value of assets and participations

 Random changes of liabilities

# SST: Group Diversification for Subsidiaries

CRTI are the tools which entities use to combine risks or share them with other group members. With CRTI, entities become beneficiaries of diversification.

Therefore, in the presence of CRTI, there is group diversification for subsidiaries: it is the quantification of risk reduction due to support from other group members compared to a standalone situation.

As the effect of CRTI is fully modelled in the SST, no additional diversification benefits have to be taken into account.

In a consolidated approach there is the need for an (arbitrary) system outside of the risk model to allocate diversification to legal entities.

In the SST, group diversification for subsidiaries is a result, not an external input of the group SST.

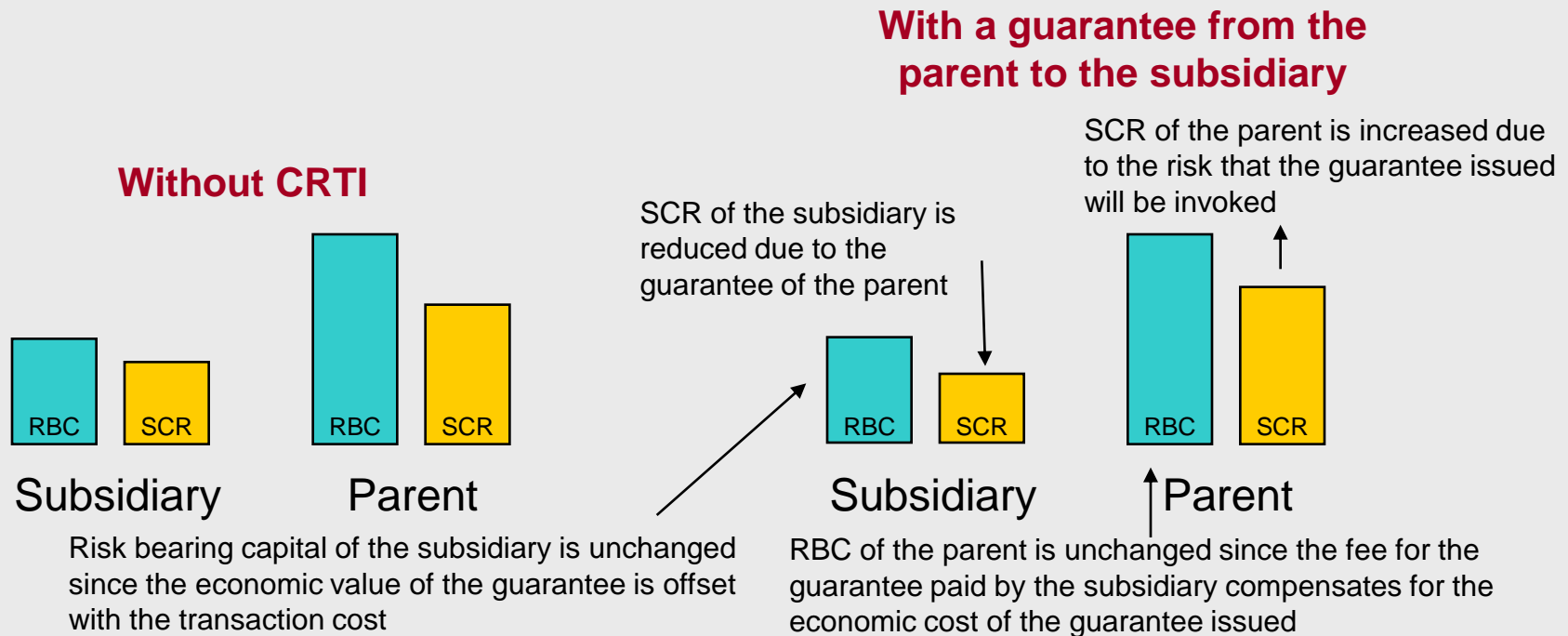
# SST: Group Diversification for Subsidiaries

Instructive extremes:

- In a group without any CRTI there is no diversification benefit for subsidiaries. Then their SCR is as if they were standalone companies.
- A group in which each entity provides unlimited guarantees to all other group members is equivalent to a single economic entity. All group members benefit from group diversification. The legal entity approach converges to a consolidated approach.

# SST: Group Diversification for Subsidiaries

Capital and Risk Transfer Instruments allow downstreaming of group level diversification to subsidiaries .



The ,allocation‘ of group level diversification to subsidiaries is not achieved via an arbitrary, exogenous allocation method but endogenously via CRTI. This however only works if CRTI are accepted across jurisdictions.

CRTIs are also the responsibility of the subsidiary, and the subsidiary needs to have strategy for dealing with the situation if the CRTIs are revoked by the parent.

No model is a perfect picture of reality.

We believe that a legal entity approach provides a better understanding of risks of and within a group. It is driven by the risk profile of the group under consideration.

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- This presentation uses terms such as solvency capital requirement (SCR) and available financial resources (AFR) partially from the Solvency II terminology. These terms correspond roughly to target capital and risk bearing capital in the Swiss Solvency Test.

# Appendix: Approaches to Group Solvency

	Legal Entity Approach	Single Economic Entity Approach
Large relative weight of group supervisor with respect to local supervisors	<p>“LE_Large”: Internal Model calculates capital requirements and capital resources for all (relevant) legal entities. These result are binding and valid for local supervisors as well as for the group supervisor.</p>	<p>“SEE_Large”: Internal Model calculates capital requirement for the group under the assumption that the group behaves as one single economic entity. Local supervisors and group supervisor additionally define how much capital each legal entity has to hold.</p>
Small relative weight of group supervisor with respect to local supervisors	<p>“LE_Small”: Internal Model calculates capital requirements and capital resources for all (relevant) legal entities. These results are not binding, local supervisors apply their individual solvency systems and assessments.</p>	<p>“SEE_Small”: Internal Model calculates capital requirement for the group under the assumption that the group behaves as one single economic entity. These results are not binding, local supervisors apply their individual solvency systems and assessments.</p>