

Principle 11: Funding

Evaluation of DIF Sufficiency on the Basis of Risk Analysis

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Two preliminary remarks, important for evaluation of DI Fund Sufficiency

1. DI Fund should be sufficient for serious difficulties in banking sector but not for systemic banking crisis
2. Under certain conditions maintaining negative balance of DIF can be more reasonable than extraordinary financing of DI Fund

Two basic methods of evaluation of DI Fund sufficiency (in practice)

1. On the basis of expert opinions on sufficiency size of DI Fund (without estimation of *PD* of member banks and DI Fund cover losses)

Ideas of some respected experts about «margin of safety» which the DI Fund should have

2. On the basis of risk analysis

*Estimation of *PD* of member banks and DI Fund cover losses*

Three conceptually important issues in evaluation of DI Fund sufficiency on the basis of risk analysis

1. Estimation of Expected and Unexpected Losses of DI Fund
2. Excluding “too big to fail” banks from the basis of evaluation of DI Fund sufficiency
3. Orientation on implied level of DIS financial reliability (of DI Fund deficit probability)

Estimation of expected and unexpected losses of DI Fund

Using Value-at-Risk approach
according to Basel Principles

$$CL = EL + UL$$

CL - Covered Losses

EL - Expected Losses

UL - Unexpected Losses

The value of unexpected losses (*UL*) depends on the level of financial reliability which is reasonably preset by a Deposit Insurer in accordance with current conditions of economy and banking sector

Excluding “too big to fail” banks from the basis of evaluation of DI Fund sufficiency

Methodology for determining the list of “too big to fail” banks should be developed

These banks should be excluded from the basis of estimation of DI Fund sufficiency

Orientation on the implied level of DIS financial reliability

A general indicator of financial reliability is a credit rating

For Deposit Insurer it should be a modeling or so-called “implied” credit rating

Implied rating can be assigned by mapping procedure, which gives the correspondence between credit ratings and values of PD

Correlation of credit rating and historical frequency of default

Rating		Historical frequency of default, %	
		duration period, 1 year	duration period, 5 years
Standard & Poor's	A	0,06	0,60
	A-	0,07	0,73
	BBB+	0,15	1,74
	BBB	0,23	1,95
	BBB-	0,31	3,74
	BB+	0,52	5,41
	BB	0,81	8,38
	BB-	1,44	12,32
	B+	2,53	17,65
	B	6,27	23,84
	B-	9,06	29,44
	CCC – C	25,59	44,50

Assigning the implied level of DIS financial reliability (i.e. the implied level of DI Fund deficit probability)

The level of DIS financial reliability (implied credit rating) should not be lower than credit ratings of the most sound member banks

It is not reasonable if a DIS reliability exceeds the sovereign credit rating

It means that target level of DIS reliability (i.e. the target level of DI Fund deficit probability) should lie somewhere between these two values

Two independent tasks in evaluation of DI Fund sufficiency

1. Short-term estimation of DIF sufficiency

Some simplifying assumptions concerning stationarity of DIS parameters can be applied

2. Long-term estimation of DIF sufficiency

Simplifying assumptions are not applicable.
Methods of scenario analysis should be used

Approaches to estimations of expected (EL) and unexpected losses (UL) of DI Fund

$$CL = EL + UL$$

$$EL = \sum_i EAD_i \cdot PD_i \cdot LGD_i \quad - \quad \textit{Expected Losses}$$

EAD – insured deposits in a member bank

PD – probability of default of a member bank

LGD – share of non-recoverable resources from the bankruptcy estate of a liquidated bank

Value of *Unexpected Losses (UL)* does not have a simple analytical expression. The easiest way to estimate *UL* is to use *statistical simulation method* (Monte Carlo).

Approaches to LGD estimation

***LGD* is a share of non-recoverable resources from the bankruptcy estate of a liquidated bank**

In case of availability of necessary data *LGD* can be estimated on the basis of various statistical models

In case of absence of relevant data several approaches to *LGD* estimation could be recommended

- ***on the basis of IRB approach of Basel II Accord concerning the LGD on unsecured claims of banks – depending on priority of a Deposit Insurer claim in bankruptcy procedure LGD could be taken equal to 45% or 75%***
- ***on the basis of generally bimodal distribution of LGD in practice – in this connection it could be recommended to set LGD equal to 50%***

Tree main approaches to estimation of probability of default (PD) of member banks

1. Standard Approach – on the basis of *credit ratings* of member banks
2. Improved Approach – on the basis of *econometrical models*
3. Advanced Approach – on the basis of *market-data models*

Standard Approach to PD estimation - on the basis of credit ratings of member banks

- Use of independent ratings is a very simple solution however substantial part of DIS members may not have any independent credit ratings
- Instead of independent ratings (or in a combination with them) there can be used internal ratings
- Deposit Insurers which use differential premium system can easily use the rating scale of this system for evaluation of DIF sufficiency
- A mapping procedure is used for transformation of ratings into values of *PD*

Improved Approach to PD estimation - on the basis of econometrical models

- In *econometrical models* financial state of the DIS member is estimated as a function from the combination of its financial parameters
- The value of this function is modified in *PD* on the basis of *available statistics of historical data on defaults* in DIS

Advanced Approach to PD estimation – on the basis of market-data models

PD is estimated not on the basis of previous history of defaults of similar member banks but taking into consideration current state of each real member bank in current conditions of banking sector and economy as a whole

PD of largest banks which are the most dangerous can be adequately estimated only by market models

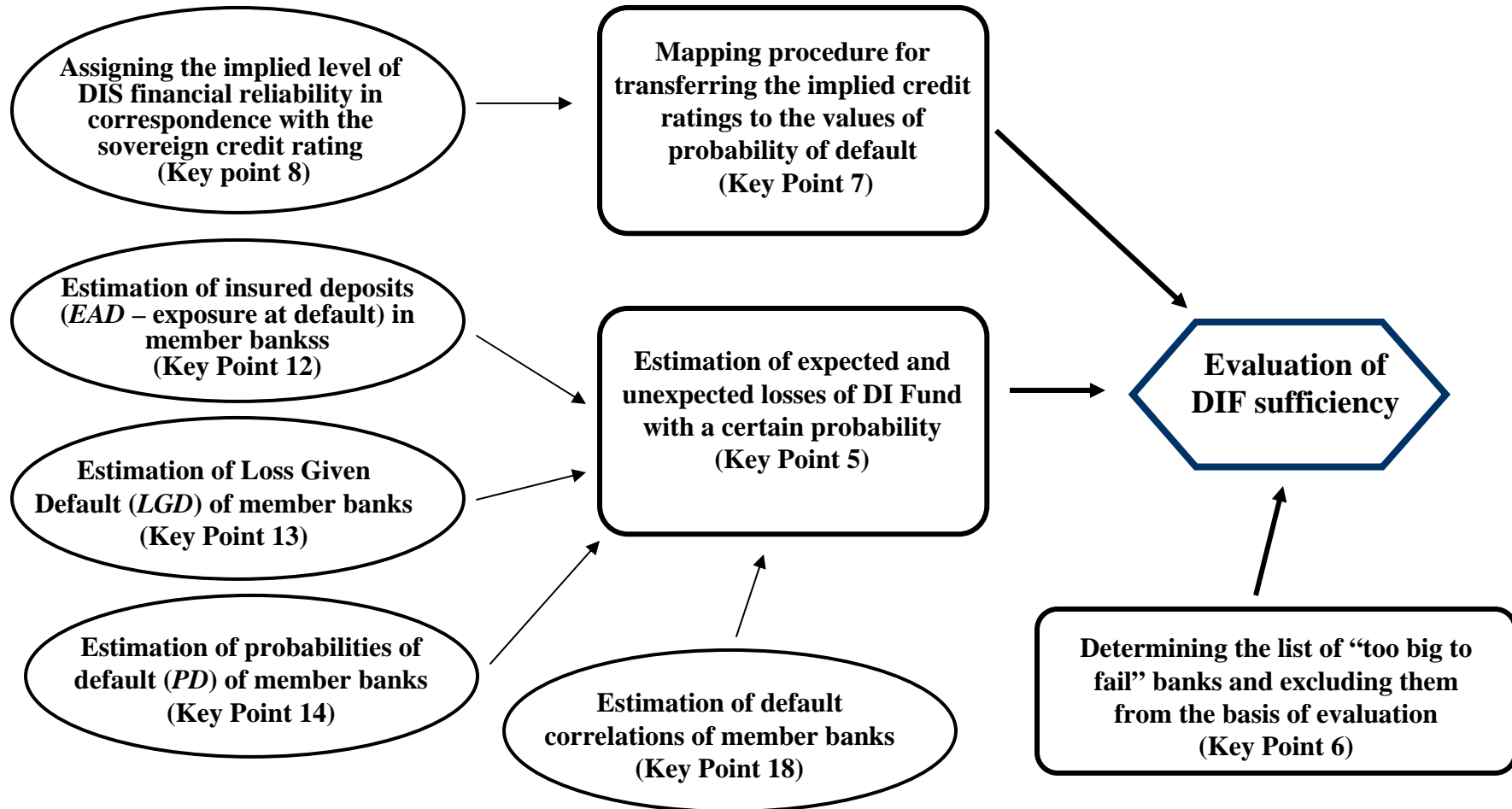
In practice, two main types of market-data models are the most developed:

- Structural Model - PDs are estimated on the basis of current market prices of shares issued by DIS members
- Reduced Form Model - PDs are estimated on the basis of current market prices of bonds, issued by DIS members

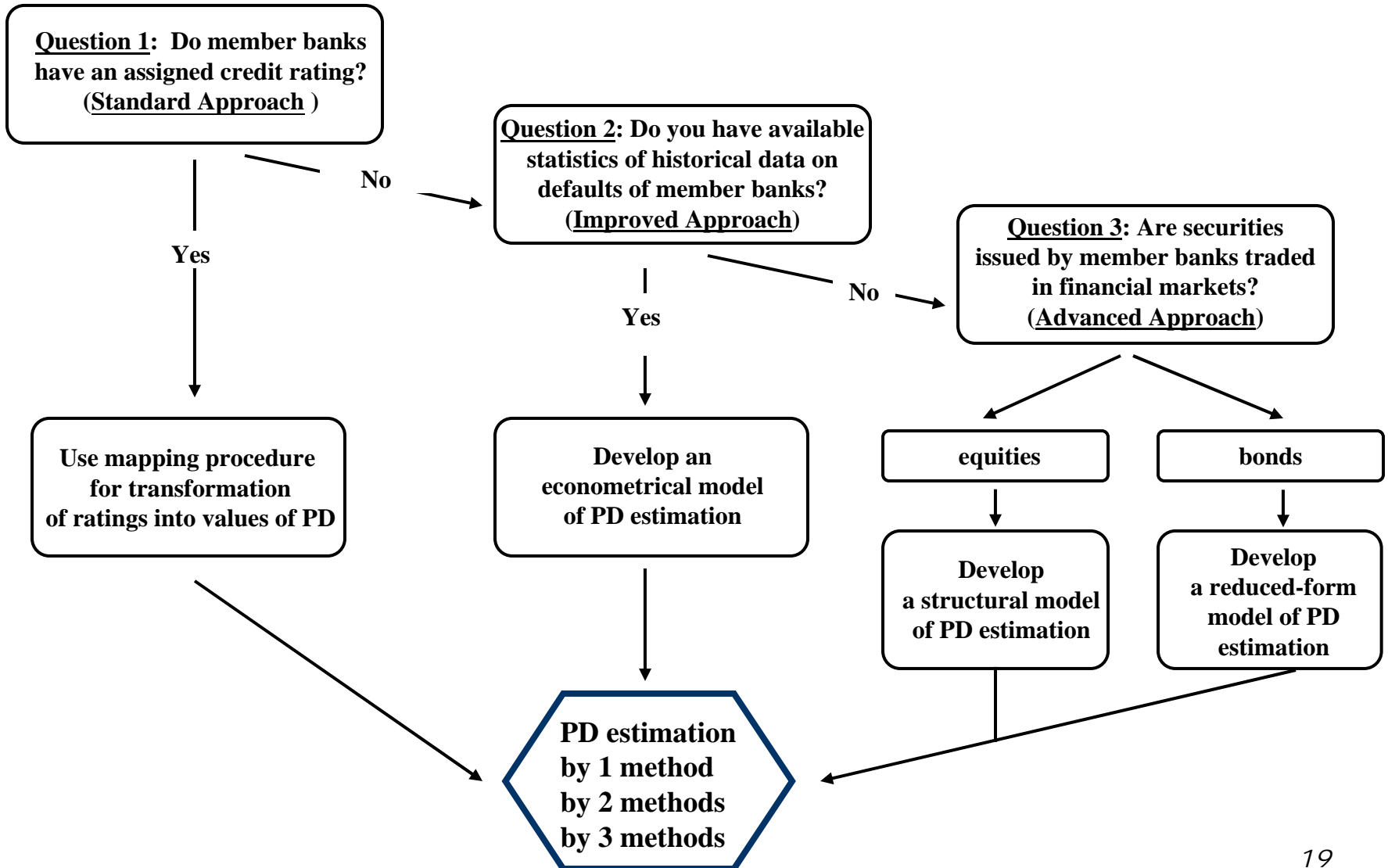
Taking into account correlations, business cycle and type of economy

Correlations of member bank defaults, stage of the business cycle and type of economy (market or transitional) should be taken into account in estimation of any parameter in evaluation of DI Fund sufficiency

General procedure of short-term estimation of DI Fund sufficiency



PD estimation procedure



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