

# **Credit Scoring of SME Using Credit Information Database**

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1. What is CRD...?
2. Background of CRD Establishment
3. Credit Bureau & Credit Database
4. Concrete Image of Practical Usage

# 1. What is CRD...? (1/5)

## I. Data Collection (p.4)

Collecting anonymous data from CRD members

## II. Creating Database & Model building (p.7)

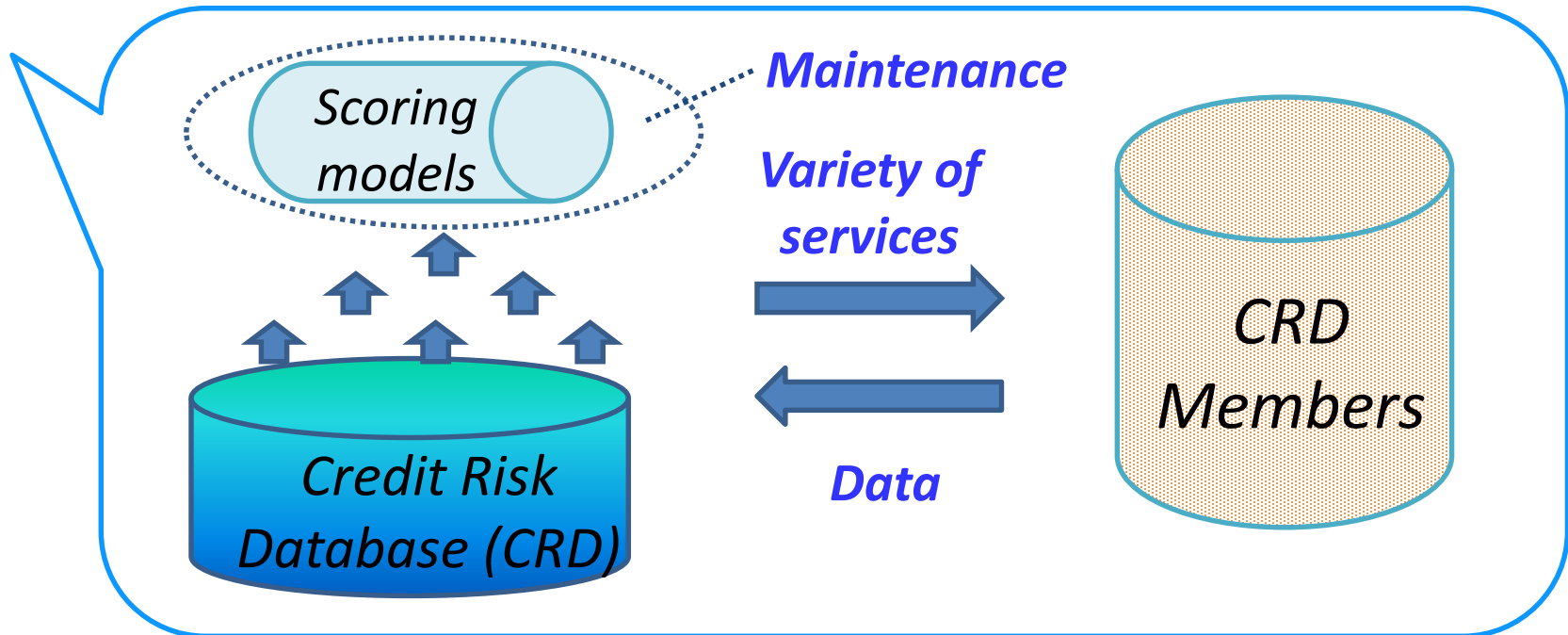
Creating database and Building CRD models based on the large database

## III. Variety of services (p.8)

Providing CRD members with variety of services

## IV. Maintenance for the quality of CRD scoring models (p.9-)

Creating the system that evaluated CRD scoring models objectively



# 1. What is CRD...? (2/5)

## I. Data Collection

CRD Association collects financial data on SMEs from members --- credit guarantee corporations throughout Japan, and government-affiliated or private financial institutions.

### 【Membership Composition & Accumulated data】

(Unit: 1,000)

Credit guarantee corporations	51
Government-affiliated financial institutions	3
Private financial institutions	116
Credit-rating agencies, etc.	4
Total	174
The governmental institutions	5

※ as of Apr 1, 2015

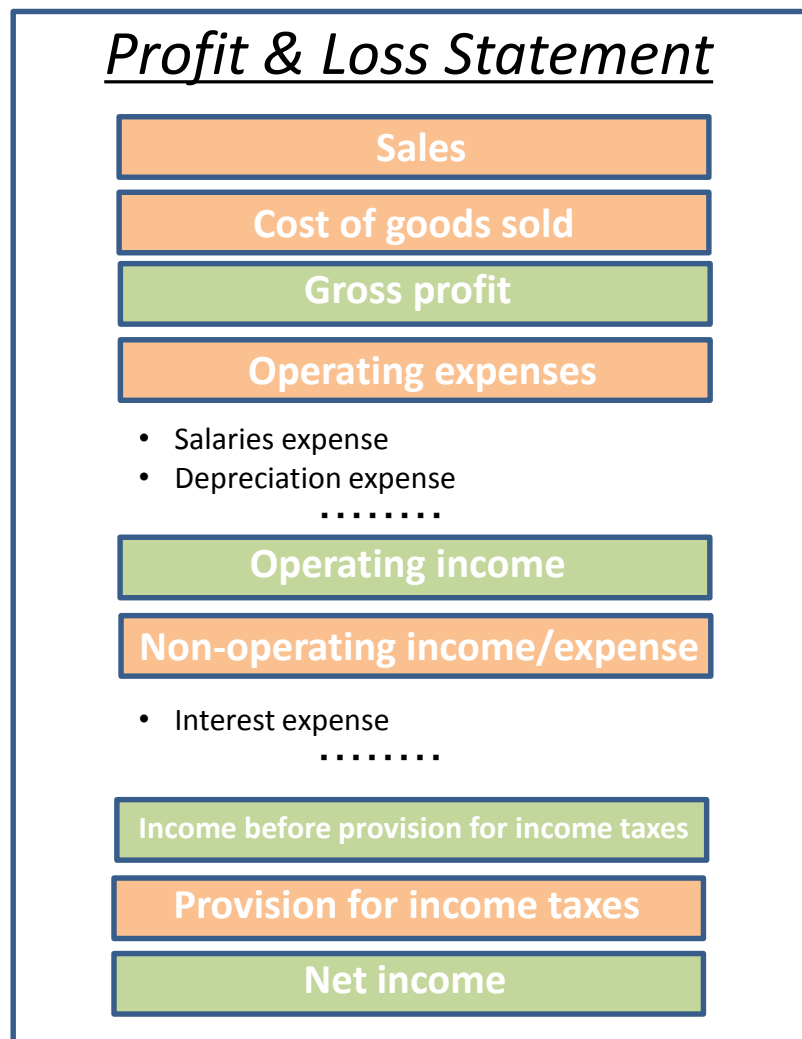
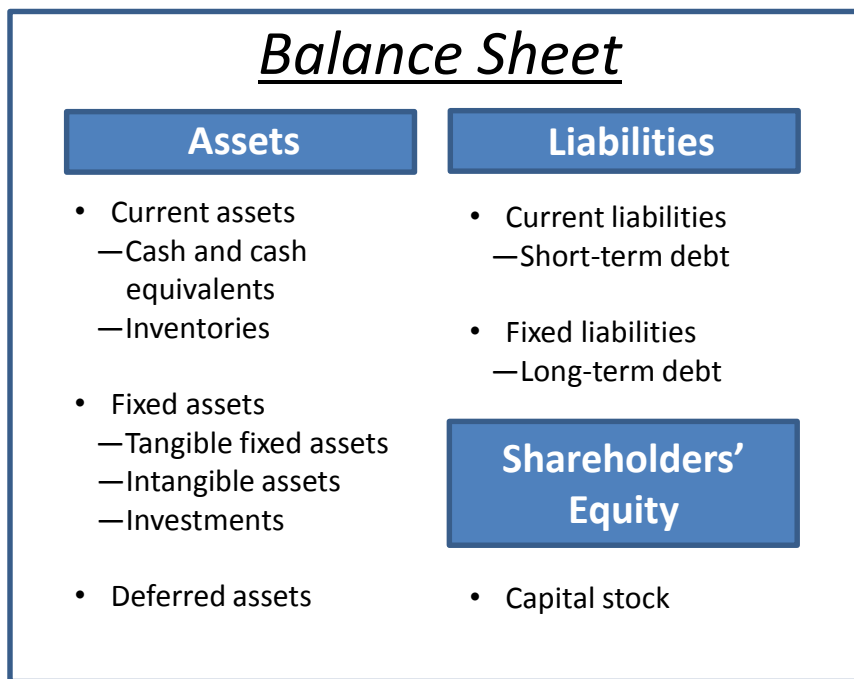
	Number of debtor	Number of financial statements
Incorporated SMEs (default information)	2,210 (340)	16,644 (2,365)
Sole-proprietor SMEs (default information)	1,099 (160)	4,519 (657)

※ ※ as of March 31, 2015

**Please refer to the next page:**  
**(Reference) Collected data & Created Financial Indexes from database**

# (Reference) Collected data & Created Financial Indexes from database ①

- Financial data (B/S, P/L)



*Financial Indexes*

- Capital-to-asset ratio
- Degree of borrowing on lending
- Ratio of interest-bearing liabilities
- Ratio of current profits to assets
- .....

# (Reference) Collected data & Created Financial Indexes from database②

- Non-financial data (Qualitative items)
  - (a) Owning or not owning real estate; (b) Successor or no successor; and (c) Birth year of CEO.
- Default data
  - (a) 3 months or more arrears; (b) de facto bankruptcy; (c) bankruptcy; and (d) subrogation (applicable for credit guarantee corporations).
  - (e) substandard and (f) potentially bankruptcy were added as correspondence to Basel II since April 2003.

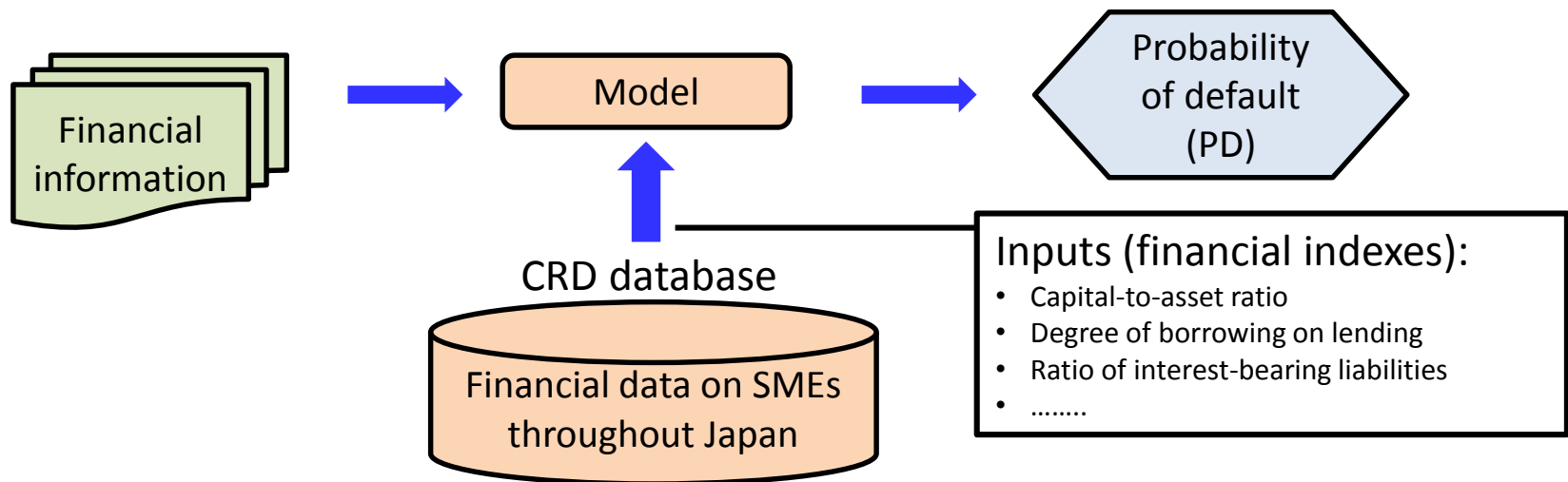
\* Attributes (for consolidation purpose)

(a) First Japanese character of company's name; (b) Date of establishment; and (c) Postal code.

# 1. What is CRD...? (3/5)

## II. Creating Database & Model building

- Collecting SME financial data are stored in anonymous form.
- The submitted data are cleansed and consolidated. These process enable to create high quality database and we monitor the quality of data continuously.
- We create scoring models for members with high quality and incomparable big database. We validate scoring models in order to maintain the quality of those.



# 1. What is CRD...? (4/5)

## III. Variety of services

### i. Scoring service

Members can use CRD scoring models and evaluate credit risk of borrowers and potential borrowers. Since April, 2006, CRD models has been using to decide Credit Guarantee Fee Rate Classification in the Credit Insurance System.

#### 【Credit Guarantee Fee Rate Classification】

(Unit: annual rate %)

Classification	1	2	3	4	5	6	7	8	9
Credit Guarantee fee rate	2.20	2.00	1.80	1.60	1.35	1.10	0.90	0.70	0.50

### ii. Sample data provision

Members can use random sampling data from CRD database.

- To complete insufficient data for creating members' internal scoring model
- To validate members' internal scoring model
- To develop financial products in new area

### iii. Statistical information provision

Member can use statistical information such as the financial indexes.

- To compare the financial statistics based on each member's customers with those of CRD database for improving the credit risk management

### iv. Management consulting support System (McSS)

Member can use consulting tool constructed of CRD scoring model and CRD data analysis.



# 1. What is CRD...? (5/5)

## IV. Maintenance for the quality of CRD scoring models

### (1) Model quality management guidelines

We established the guideline on the model development, model operation & validation and organized the Third-Party Evaluation Committee for CRD scoring models.

### (2) Regular Validation & its Assessment

- We validate CRD models annually in line with the guideline and the regulation under the Small and Medium-sized Enterprise Credit Insurance Act and FSA notification.
  - To check the transition of actual data as compared with the data which the current models are based on
  - To check Accuracy ratio (AR) of the models
  - To compare PD with actual default rate
  - To check the stability of the model
  - To check the explanatory ability of the variables to detect default
- The Third-Party Evaluation Committee for CRD scoring models assesses the result of validation.

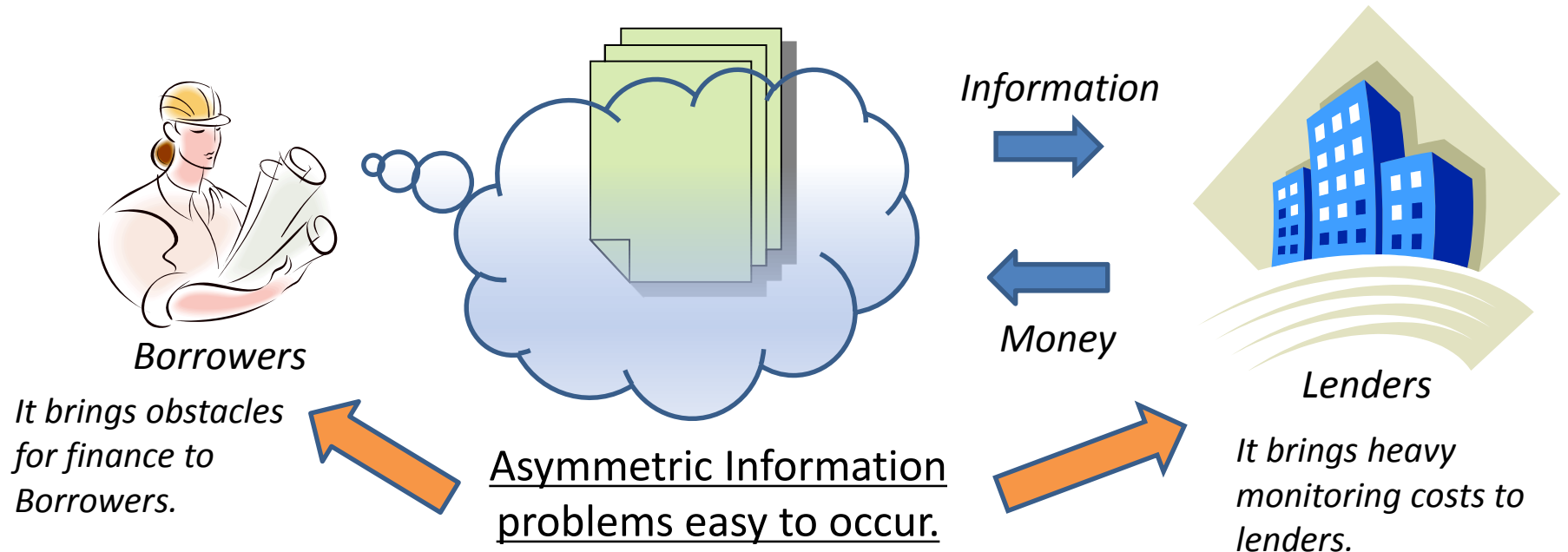
### (3) Disclosure of assessment by the Third-Party Evaluation Committee

Annual Report by Third-Party Evaluation Committee is delivered to the members and the summary of the assessments are disclosed to public on CRD website.

# 2. Background of CRD

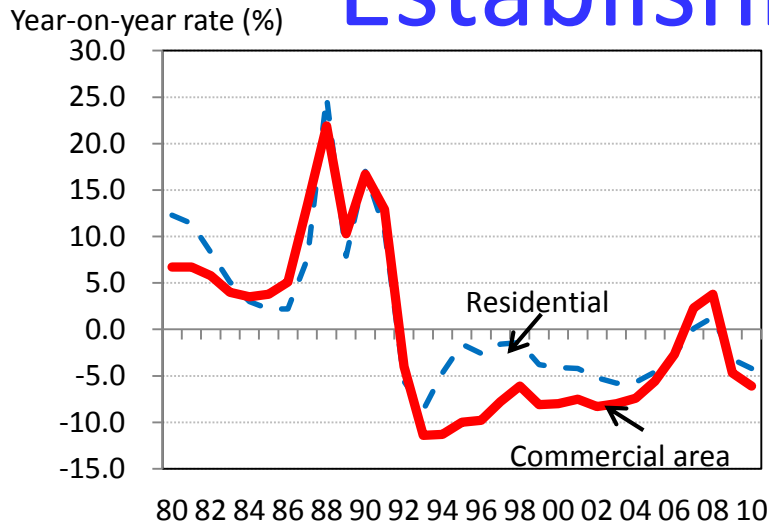
## Establishment (1/3)

- ◆ Financial Business belongs to an information industry.



- In financial and capital markets, information sharing system is well-developed as an infrastructure.
- SMEs that can't use such an infrastructure suffer from asymmetric information problem seriously.
- Previous resolution of the problems for SME financing is to utilize the land as collateral.

# 2. Background of CRD Establishment (2/3)



Source: Ministry of Land, Infrastructure and Transport

- In the 80's, the land prices rose drastically and the financial system relied heavily on the land as collateral more and more.
- However, Collapse of bubble economy had occurred.
- The excessive amount of collateral or heavy burden of guarantee was required for financing.

- Lenders need to improve the quality of risk management and borrowers(SMEs) hope to get better access to finance.
- Both of them hold an incentive for the introduction of more rigorous evaluation of credit risks.



## To create *credit risk information*

*CRD was founded in March 2001 as a membership organization to collect data on SMEs led by SME Agency. The primary objective of establishing CRD was to **promote the streaming and efficiency of SME financing** by assessing their business conditions based on data and by measuring credit risks related to SME financing.*

# 2. Background of CRD Establishment (3/3)

- To deal with the requirements of excessive collateral in SME financing (To cope with the collapse of the financial system relied heavily on the collaterals)
- To manage the requirements of sophisticated risk management corresponding to Basel II



The Leading user conference was organized by SME Agency.



CRD management Council was founded in March,2001.

\*CRD Management Council renamed itself CRD Association in April, 2005.

- 58members attended.
- Scoring Model (CRD Model 1 ver.1) was released.

## 【Missions of CRD】

- a) Facilitating the fund provision to SMEs in Japan
- b) Improving the quality of risk management in finance
- c) Managing the database in a fair manner

# 3. Credit Bureau and Credit Database

There are two types of organization that deal with *credit risk information*.

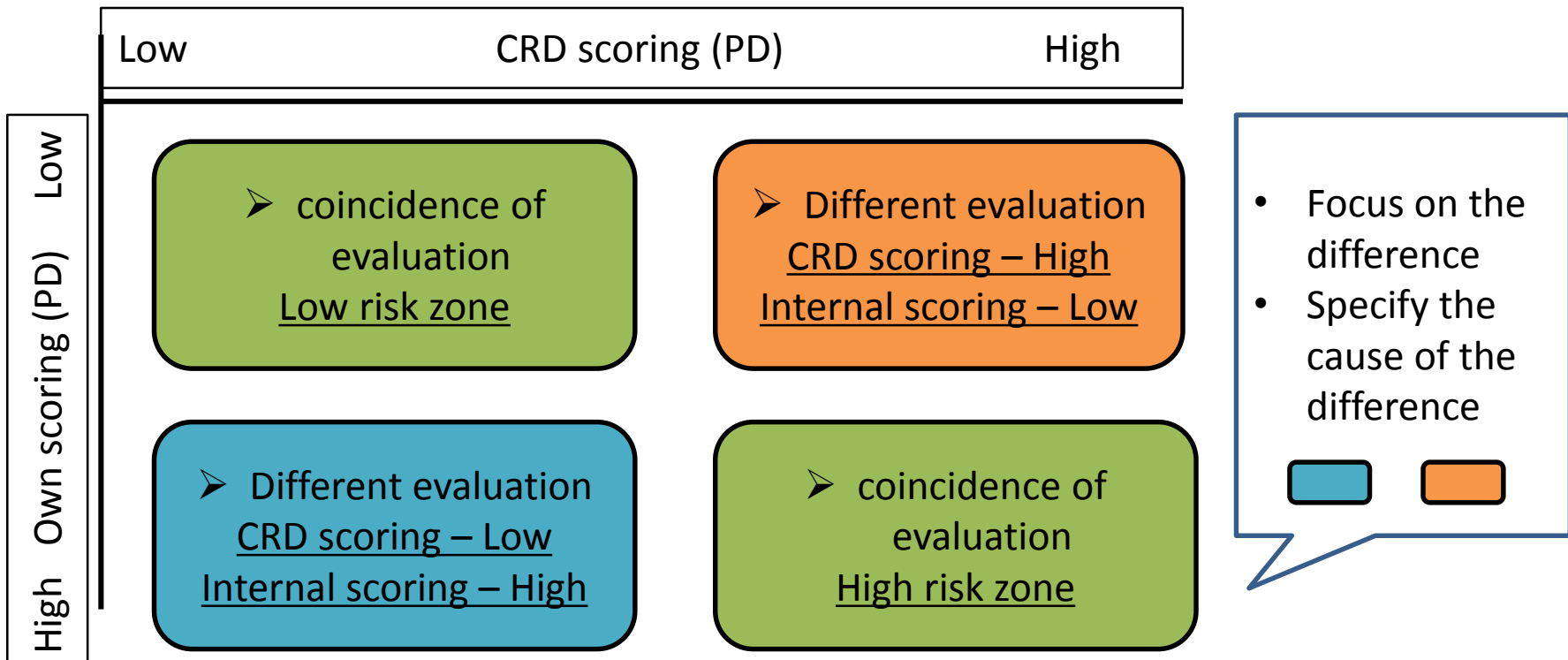
- ① Credit information centers designed to collect the personally identifiable credit information (PICl) and having individual information reference function (Credit Bureaus)  
→ Sharing borrowers' ( or potential borrowers') individual credit information as materials for judging their creditworthiness  
Primary driving force-----***Bank supervision for reducing non-performing loan***
  
- ② Credit information centers designed to collect anonymous financial information and having no individual information reference function (Credit Database)  
→ Showing an average borrowers in the group with same attributes and more accurate prediction of the credit risk based on a large database  
Primary driving force-----***Mitigating the constraint on SME finance***

# (reference) Credit bureaus vs Credit databases

	Credit bureaus (Credit research company & Designated credit bureaus)	Credit databases
Information	Personally identifiable information ---Information of individual borrowers	Anonymous information ---An average borrower in the group with same attributes (statistical information)
Discipline on the borrowers	Direct To acquire good financial record (“reputation collateral”) To avoid being blacklisted	Indirect To belong to higher credit rating group To improve financial condition
Promoting competition in financial market	Direct, Limited To reduce information monopoly	Indirect, Broad To reduce overestimated risk-premium by improving predictability
Constraint come from privacy problems	Tight constraints <ul style="list-style-type: none"> <li>— Contents(depth) of information               <ul style="list-style-type: none"> <li>— Tight constraints affect the depth and length of database</li> </ul> </li> <li>— Preservation period</li> <li>— Accuracy of data               <ul style="list-style-type: none"> <li>— Needs for correction of self-information</li> </ul> </li> </ul>	No constraints <ul style="list-style-type: none"> <li>— It is comparatively easy to develop deep and rich database enabling more value-add services.</li> </ul>

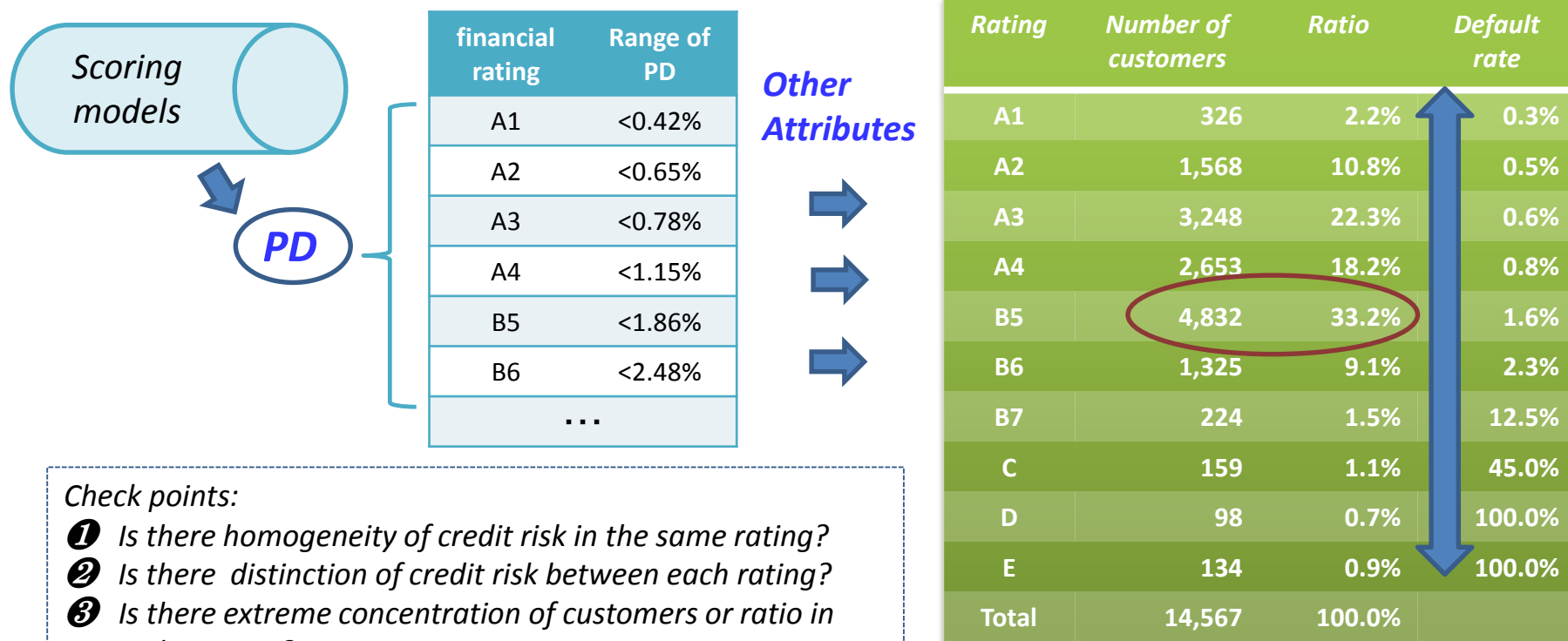
# 4. Concrete Image of Practical Usage (1/2)

Many of CRD members employ CRD scoring models for validating their own scoring models.



# 4. Concrete Image of Practical Usage (2/2)

Some of CRD members develop their internal rating systems by employing CRD scoring models. First, they group customers into the categories in accordance with the degree of estimated PD based on CRD scoring models. Then they develop their internal rating systems taking other attributes such as qualitative items into account.



Check points:

- ❶ Is there homogeneity of credit risk in the same rating?
- ❷ Is there distinction of credit risk between each rating?
- ❸ Is there extreme concentration of customers or ratio in particular rating?

Members can construct their internal rating systems reflecting statistical prediction of PD and qualitative items they have weighed for loan decision making, which contributes to the improvement of risk management.



THANK YOU

FOR YOUR KIND ATTENTION!