

# **ANALYSIS of SME database and Financing for SMEs**

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**Farhad Taghizadeh-Hesary**

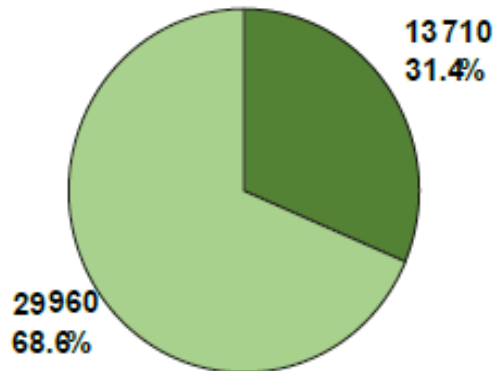
Assistant Professor, Keio University, Japan

*October 29-30, Rome, Italy*

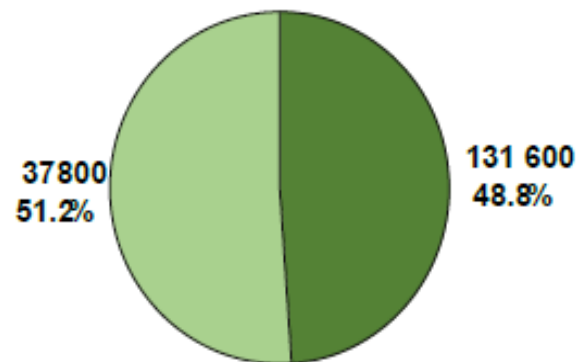
# SMEs in Japan

Large enterprises SMEs

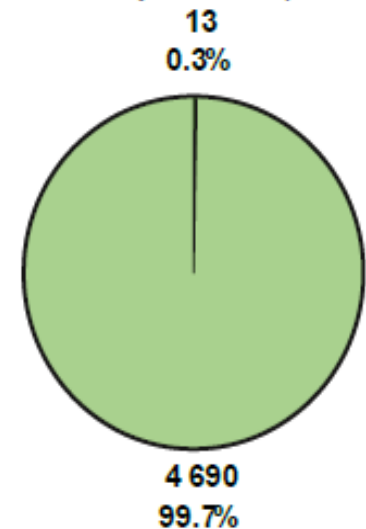
Number of employees ('000)



Sales (Y billion)



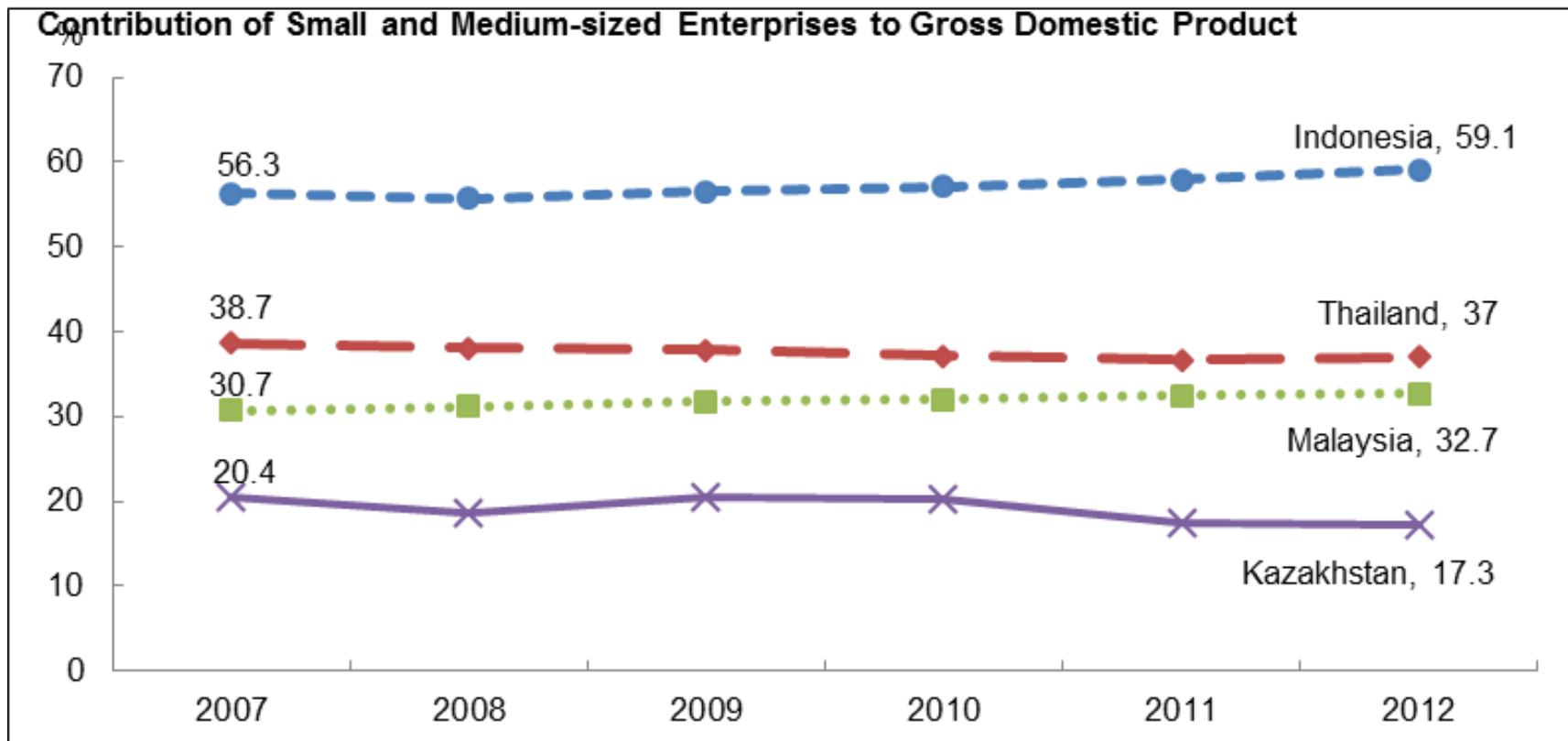
Number of companies ('000)



Source: White Paper on SMEs, Japanese Government, METI, 2011.

# SMEs in the People's Republic of China

Item	2007	2008	2009	2010	2011*	2012*
<b>Number of SMEs</b>						
SMEs (number)	333,858	422,925	431,110	449,130	316,498	334,321
SMEs to total (%)	99.1	99.3	99.3	99.2	97.2	97.3
<b>Employment by SMEs</b>						
SME employees ('000)	60,521	68,671	67,877	72,369	59,357	...
SMEs to total (%)	76.8	77.7	76.9	75.8	64.7	...
<b>SME Exports</b>						
SME exports (CNY billion)	4,303	4,773	4,152	4,919	4,142	4,423
SMEs to total exports (%)	58.6	57.9	57.6	54.7	41.6	41.5



Source: ADB (2014).

# ***Small and Medium Sized Enterprise (SME)***

Venture business

Toyota, Honda, SONY, Seven-Eleven

HONDA had no support by the government

HONDA could not borrow money

M-bank made loans to HONDA.

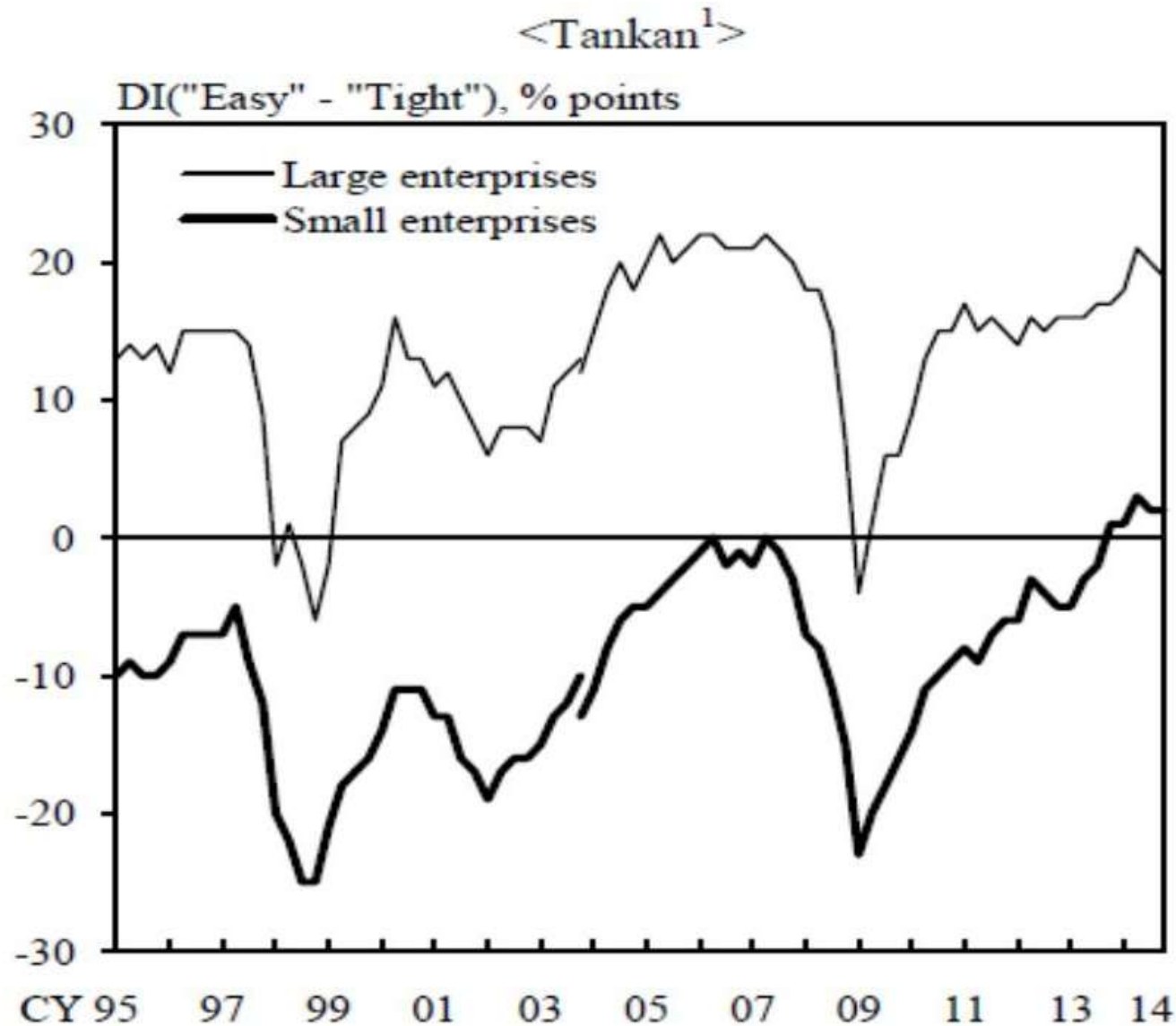
How to finance start-up business ?

Human capital development in SME

# **Asian Financial Markets' Main Features**

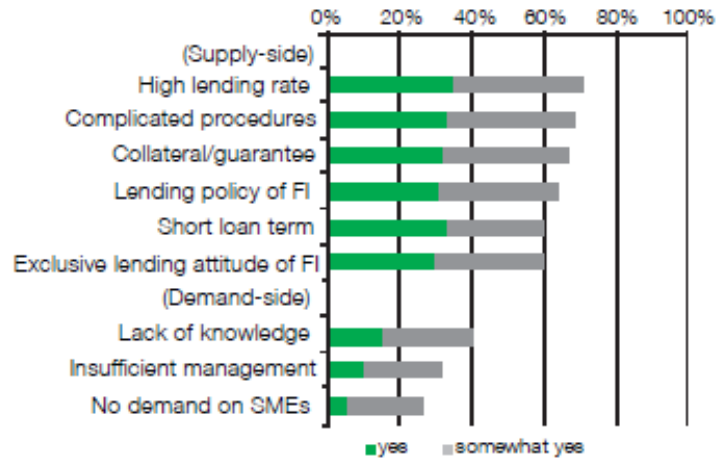
- 1. Bank-dominated financial system**
- 2. Small share of bond markets --->  
Needs for long term financing**
- 3. Lack of long-term investors such as  
pension funds and Life insurance**
- 4. Bench mark bond market (soverign bond)  
Infrastructure bond, corporate bond**
- 5. High percentage of SMEs**
- 6. Large share or Microcredit (finance  
companies); Lack of venture capital**

# Access to Finance by SMEs and Large Firms in Japan

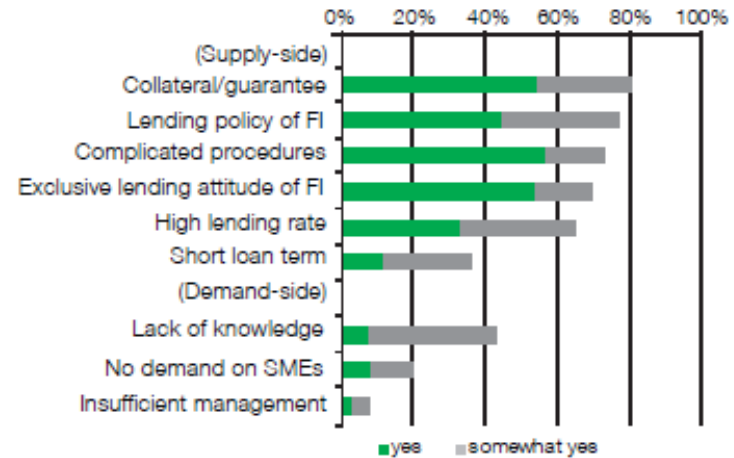


# Barriers for SMEs in Accessing Financial Institutions

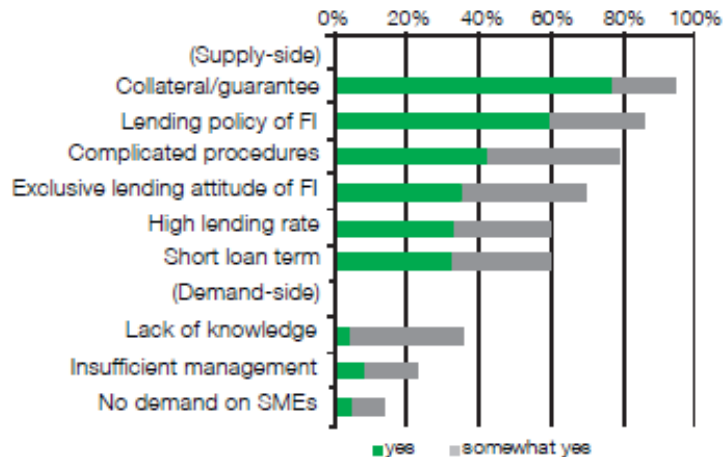
## A. People's Republic of China



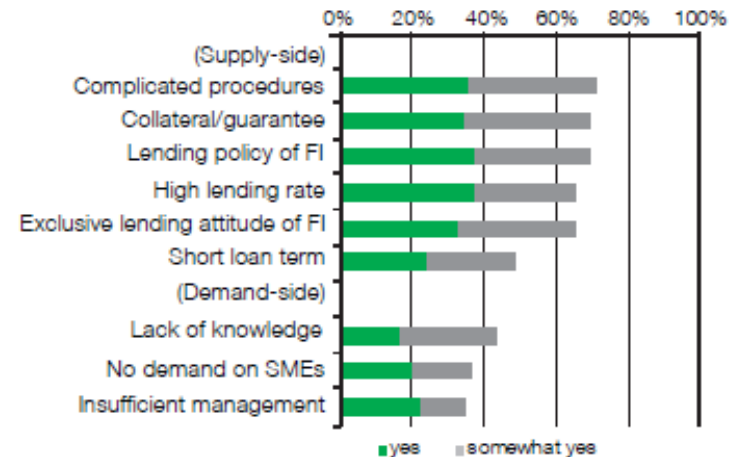
## B. India



## C. Republic of Korea

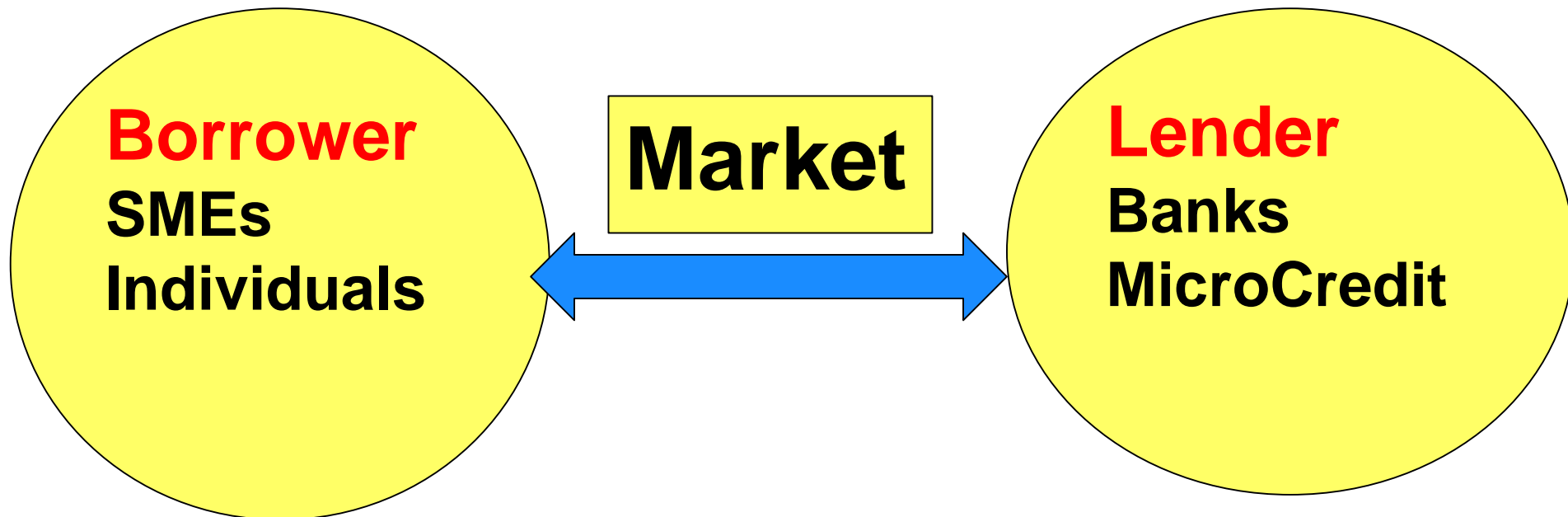


## D. Malaysia



**Source:** ADB–OECD study on enhancing financial accessibility for SMEs: Lessons from recent crises. Mandaluyong City, Philippines: Asian Development Bank, 2013

# *Borrower, Lender and Market*

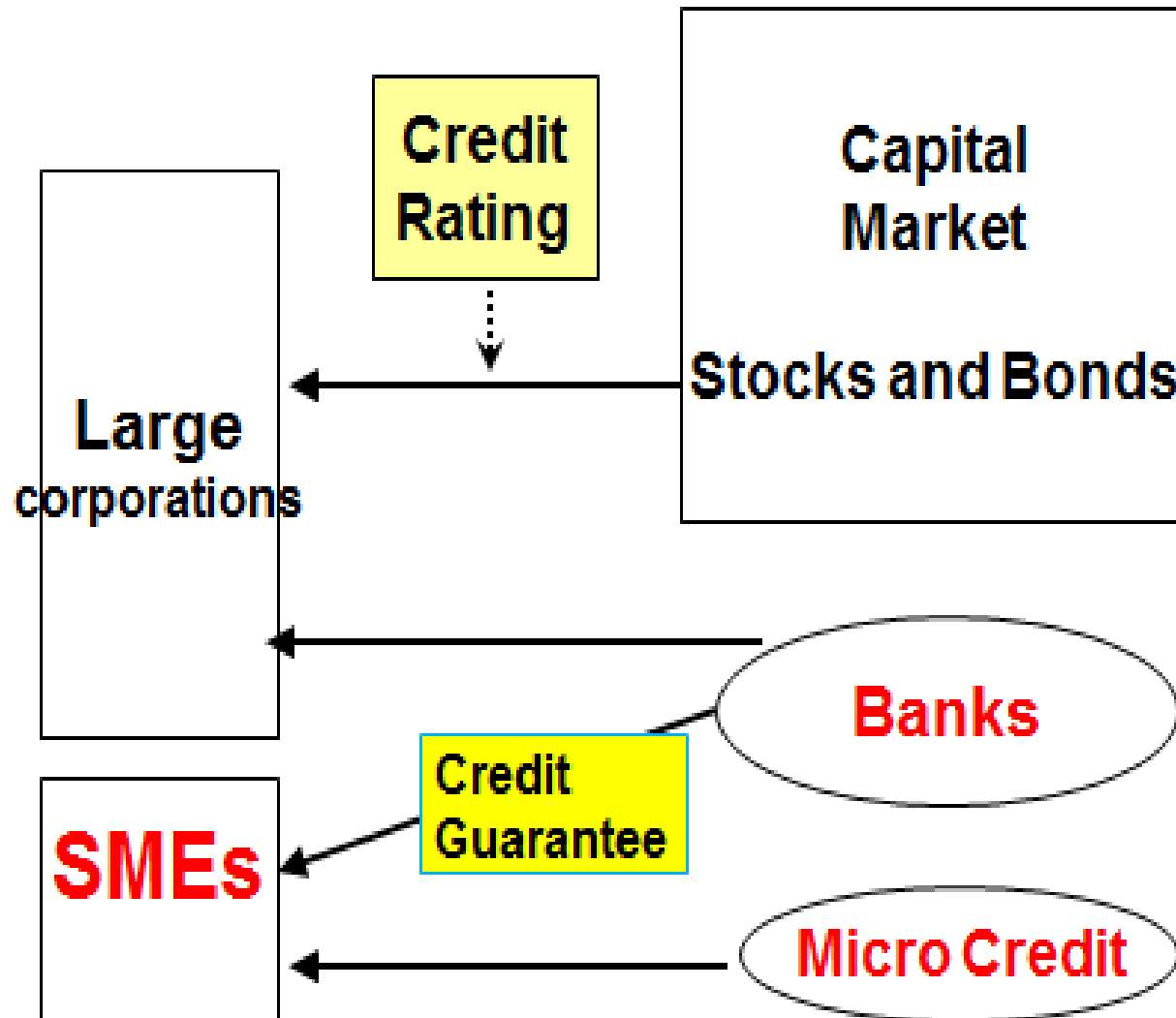


**Information Asymmetry**  
**Especially SME market**

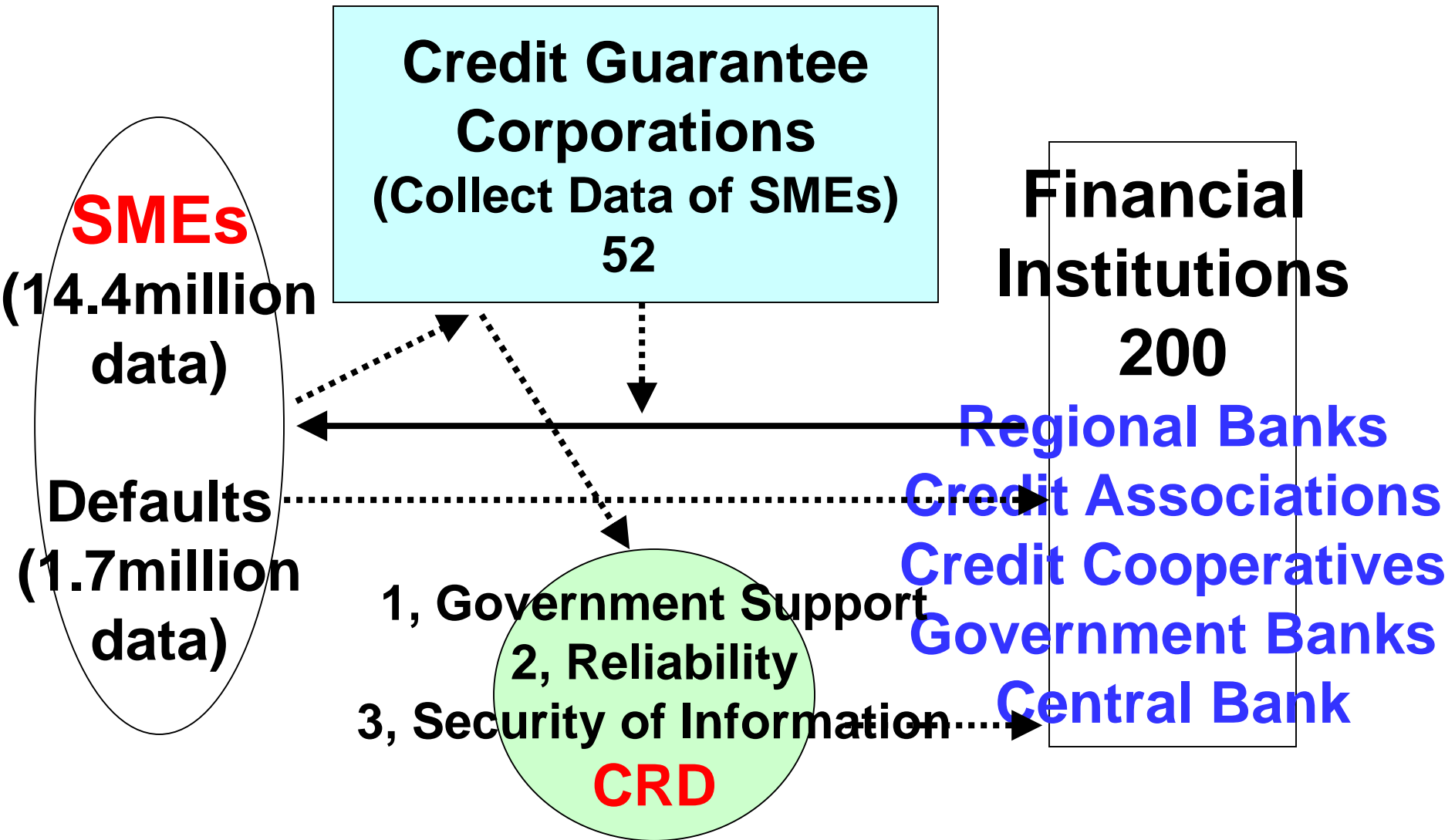
# *Four Accounts by SME*

- 1, Account to show **Bankers**
- 2, Account to show **tax authority**
- 3, His own account
- 4, Account to show to **his wife**

# Lack of Data for SMEs



# *SME Data base (CRD Data base)*



# *CRD Database*

- 1, Sector, Location, Year of Establishment
- 2, Real estates, Age of Owner
- 3, Successor or not
- 4, Financial Data
  - (i) Cash & Deposits,
  - (ii) Liquidity Assets and Fixed Assets
  - (iii) Total Assets
  - (iv) Short term and long term borrowings
  - (v) Sales, Profits

# **Analysis of SME credit risk using Asian data**

- **Selection of the variables**
- **Principal Component Analysis**
- **Cluster Analysis**

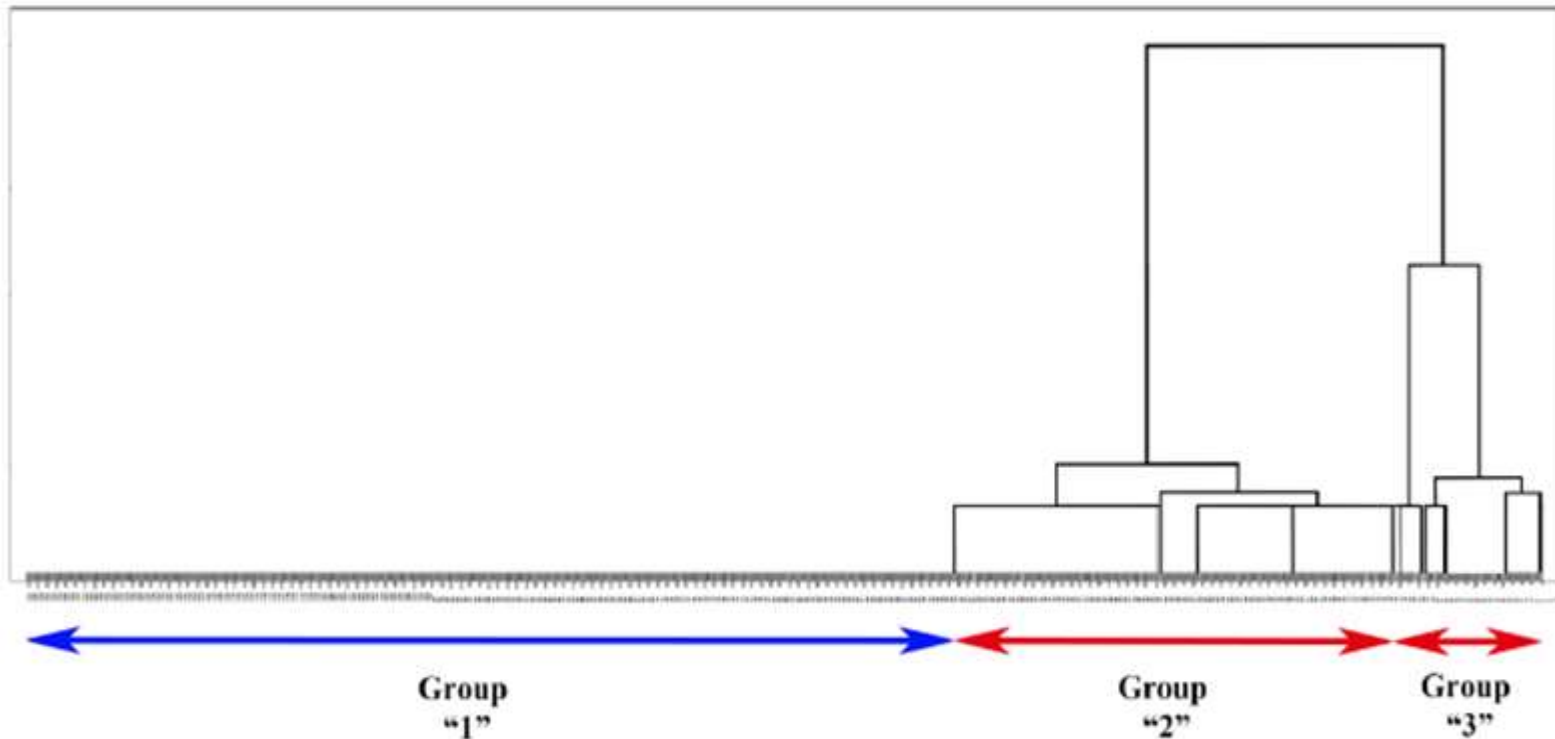
# Examined Variable

No.	Symbol	Definition	Category
1	Equity_TL	Equity (book value)/total liabilities	Leverage
2	TL_Tassets	Total liabilities/total assets	
3	Cash_Tassets	Cash/total assets	Liquidity
4	WoC_Tassets	Working capital/total assets	
5	Cash_Sales	Cash/net sales	
6	EBIT_Sales	Ebit/sales	Profitability
7	Rinc_Tassets	Retained earnings/total assets	
8	Ninc_Sales	Net income/sales	
9	EBIT_IE	Ebit/interest expenses	Coverage
10	AP_Sales	Account payable/sales	Activity
11	AR_TL	Account receivable/total liabilities	

*Note:* Retained earnings = the percentage of net earnings not paid out as dividends, but retained by the company to be reinvested in its core business or to pay debt. It is recorded under shareholders' equity in the balance sheet. Ebit = earnings before interest and taxes. Account payable = an accounting entry that represents an entity's obligation to pay off a short-term debt to its creditors. The accounts payable entry is found on a balance sheet under current liabilities. Account receivable = money owed by customers (individuals or corporations) to another entity in exchange for goods or services that have been delivered or used, but not yet paid for. Receivables usually come in the form of operating lines of credit and are usually due within a relatively short time period, ranging from a few days to a year.

# Cluster analysis: the average linkage method

## Dendrogram Using Average Linkage



# Factor Loadings of Financial Variables after Direct Oblimin Rotation

Variables (Financial Ratios)	Component			
	Z1	Z2	Z3	Z4
Equity_TL	0.009	0.068	0.113	<b>0.705</b>
TL_Tassets	-0.032	<b>-0.878</b>	0.069	-0.034
Cash_Tassets	-0.034	-0.061	<b>0.811</b>	0.098
WoC_Tassets	-0.05	<b>0.762</b>	0.044	0.179
Cash_Sales	<b>-0.937</b>	0.021	0.083	0.009
EBIT_Sales	<b>0.962</b>	0.008	0.024	-0.004
Rinc_Tassets	0.014	<b>0.877</b>	0.015	-0.178
Ninc_Sales	<b>0.971</b>	-0.012	0.015	0.014
EBIT_IE	0.035	0.045	<b>0.766</b>	-0.098
AP_Sales	<b>-0.731</b>	-0.017	-0.037	-0.016
AR_TL	0.009	-0.041	-0.104	<b>0.725</b>

Note: The extraction method was principal component analysis, The rotation method was direct oblimin with Kaiser normalization.

# Credit Rating of SMEs using Asian Data



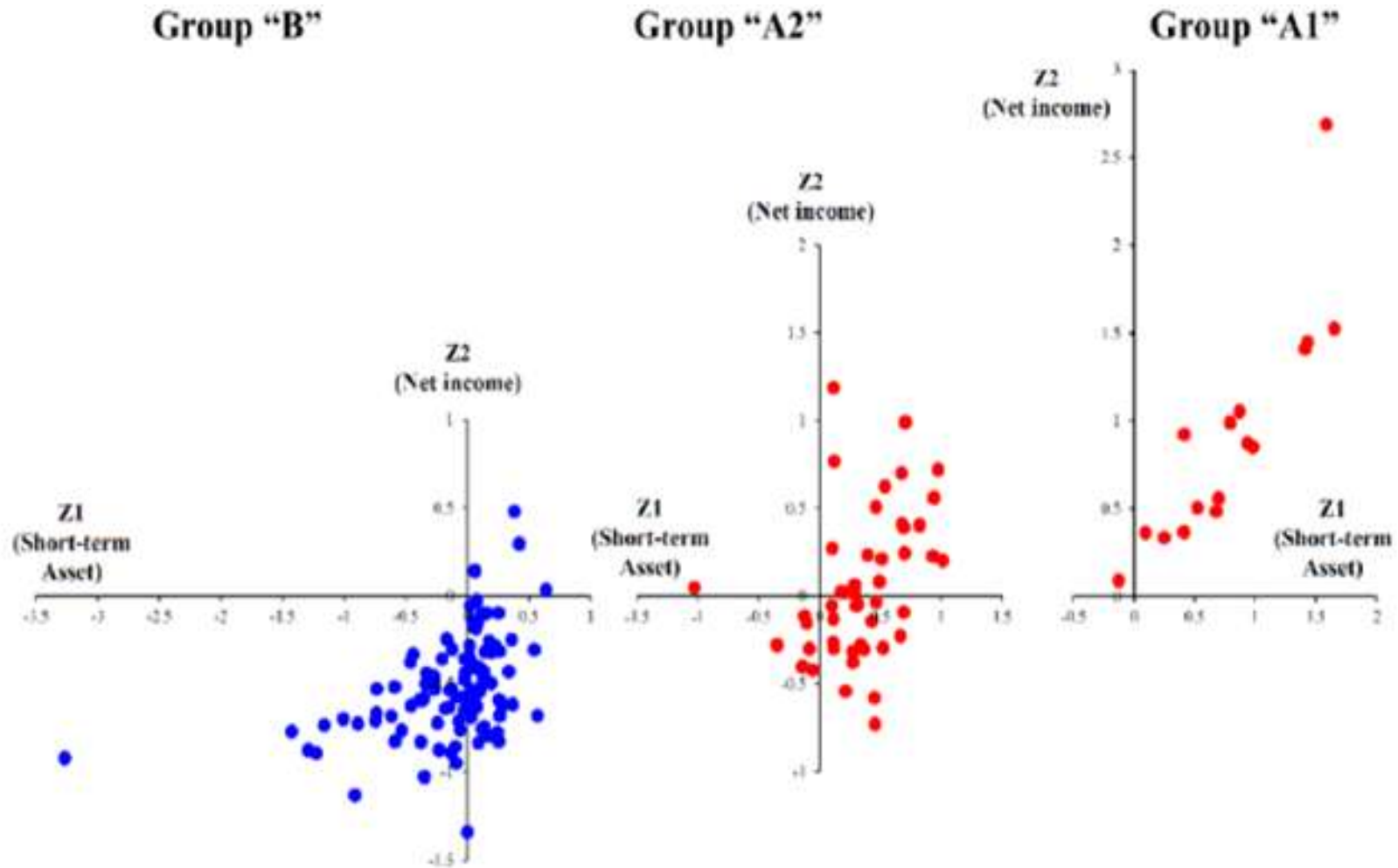
**(i) Sales**

**(ii) Assets**

**(iii) Liquidity (Cash)**

**(iv) Total Debt**

# Grouping Based on Principal Component (Z1-Z2) and Cluster Analysis



# ***Credit Rating for SMEs*** ***by Use of SME Database***

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- 1, Credit Rating is only applicable to large companies**
- 2, Credit Rating for SMEs based on SME Data**
- 3, Three ranking of SMEs (Asian country)  
Five ranking of SMEs (Japan's case)**
- 4, SME data can produce default risk ratio**
- 5, Risk based Interest rate**

# *Financial Education for SMEs Education Program and Textbooks*

**1, Financial Planners Association**

**Individual Borrowing**

**2, Central Bank of Japan**

**Text books, Educate School teachers**

**Regional Education Program**

**3, Various Financial Associations**

**Bankers Association, Stock Exchange**

**(1) SMEs pay higher interest rate**

**Compounding interest rate  $(1+r)$ ,  $(1+r)^2$ ,  $(1+r)^3$ ,  $(1+r)^4$   
Start-up businesses are quite difficult to borrow money from banks**

**(2) Plenty collateral required, “tuna fish” as collateral.**

**(3) Asset management skill by SMEs**

**(4) Pension management by SMEs**

**SMEs have to contribute 50% of the pension reserves of their employees.**

**(5) Book keeping by SMEs**

Financial institution	Year	2009				2010				2011			
	Month	3	6	9	12	3	6	9	12	3	6	9	12
Domestically-licensed banks' banking accounts total		181.1	177.9	178.0	177.5	177.6	173.2	174.4	173.7	174.8	170.0	171.2	171.4
Domestically-licensed banks' trust accounts, etc.		1.1	1.1	1.0	1.0	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.4
Credit associations		42.7	42.3	42.6	42.8	42.1	41.4	41.7	42.0	41.5	41.0	41.4	41.6
Credit cooperatives		9.4	9.3	9.4	9.4	9.4	9.3	9.4	9.4	9.4	9.4	9.4	9.5
Private-sector financial institutions total		234.4	230.6	231.0	230.8	229.8	224.6	226.2	225.8	226.3	220.9	222.5	222.9
Private-sector financial institutions total (excluding trust accounts, etc.)		233.2	229.6	229.9	229.8	229.1	224.0	225.5	225.1	225.7	220.3	222.0	222.4
Shoko Chukin Bank		9.1	9.2	9.3	9.4	9.4	9.3	9.4	9.5	9.5	9.5	9.5	9.7
Japan Finance Corporation (Small and Medium Enterprise Unit)		5.6	6.0	6.1	6.2	6.2	6.2	6.2	6.3	6.4	6.4	6.4	6.5
Japan Finance Corporation (Micro Business and Individual Unit)		6.5	6.6	6.6	6.7	6.5	6.6	6.6	6.7	6.5	6.6	6.5	6.6
Government-affiliated financial institutions total		21.3	21.8	22.0	22.3	22.1	22.1	22.2	22.5	22.5	22.5	22.5	22.7
Total outstanding lending to SMEs		255.7	252.4	252.9	253.1	251.9	246.7	248.4	248.3	248.8	243.4	244.9	245.6
Total outstanding lending to SMEs (excluding trust accounts, etc.)		254.5	251.3	251.9	252.1	251.2	246.0	247.7	247.6	248.1	242.8	244.4	245.2

# Possible Solutions

## Start up businesses

### Hometown Investment

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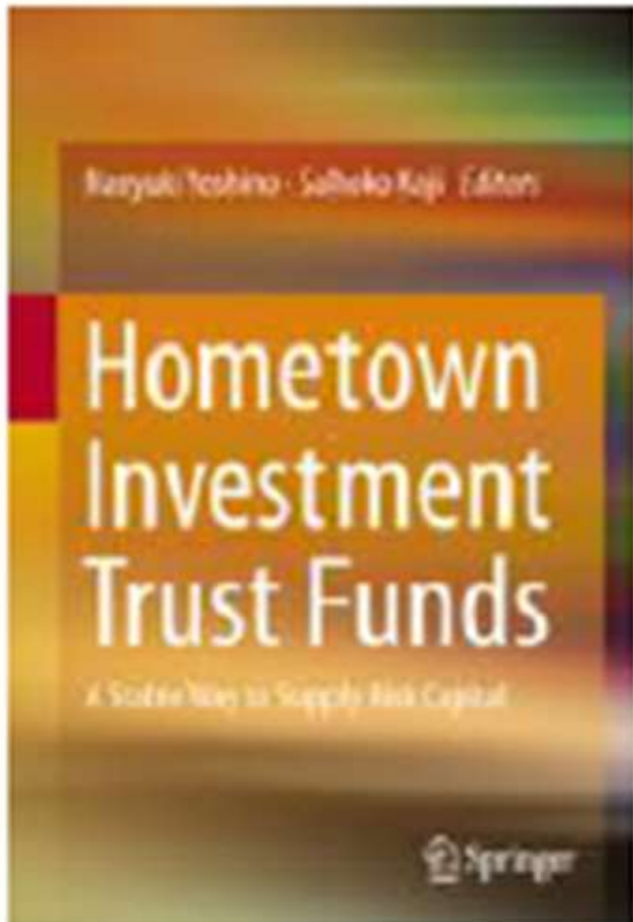
#### A Stable Way to Supply Risk Capital

Yoshino, Naoyuki; Kaji Sahoko (Eds.)  
2013, IX, 98 p. 41 illus., 20 illus. in color

Available Formats:

ebook

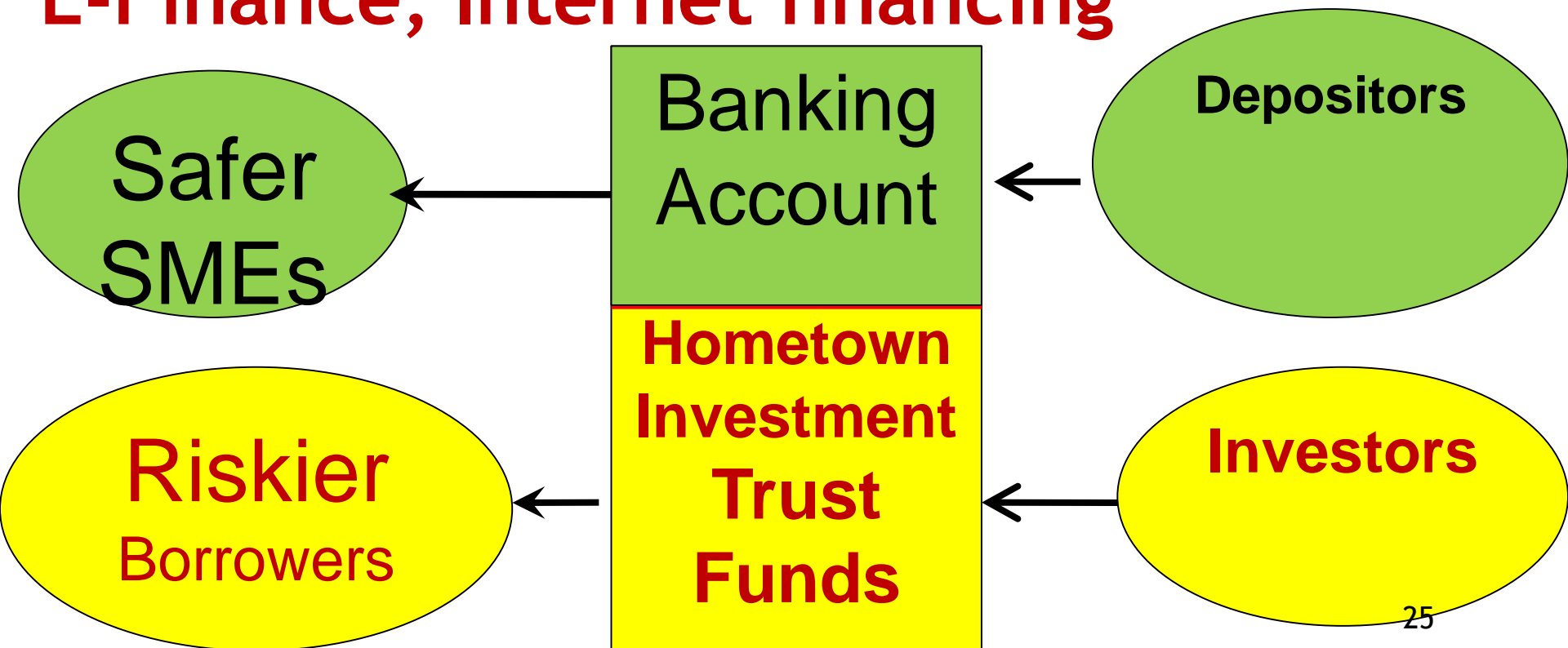
Hardcover



# Bank-based SME financing and regional financing to riskier borrowers

1. Bank Loans to relatively safer borrower
2. Hometown Investment Trust Funds/

## E-Finance, Internet financing



# *E-banking, E-commerce*

## **Trade Credit**

high cost of sending money to overseas

## **New Entry to Transaction service**

traditional banks are so expensive

SONY and YEON retail store enter the business

Finger print identification by mobile phone

Individual identification - SS number

## **Start up Business --- Internet disclosure**



## *Investment in SMEs and start up businesses*



すべてを失い再起を断念しようになった時

# ***Agricultural Funds***

## ***Beans and Wine***



*Regulation of Money Lenders in Rural Regions  
(OECD-ADBI)*

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1, Money lenders, **Interest rate = 96% in Japan**

2, License --- Banks

**Registration** --- Finance companies

3, **New Finance Company Law**

(i) **Highest interest rate = 20%**

(ii) **Amount of borrowing < 1/3 of Income**

(iii) **Minimum Capital**

# *Basel Capital Requirements*

## *Basel III*

- 1, Adequate Capital for Banks**
- 2, To keep healthy**
- 3, SME loans will decline**
- 4, Micro credit**
- 5, Loan sharks**
- 6, Education to SMEs and borrowers**

# *Discussions*

**1, Long term financing to corporations**

**Large corporations**

**2, large companies can access to bond market**

**3, SMEs and venture businesses**

**who will provide long term funds ?**

**4, Evaluation of risks of SMEs**

**5, SME database, CRD in Japan**

**6, Hometown investment trust funds**

## References

Yoshino N. Kaji, S. (2013) ***Hometown Investment Trust Funds***, Springer, March 2013

Yoshino, N and T. Hirano (2012) “Counter-Cyclical Buffer of the Basel Capital Requirement and Its Empirical Analysis” , chapter in ***Current Developments in Monetary and Financial Law*** (Vol. 6): Restoring Financial Stability—The Legal Response, edited by the International Monetary Fund (IMF, 2012).

Yoshino, N and Farhad Taghizadeh (2015), “An Analysis of Challenges Faced by Japan’s Economy and Abenomics” ***The Journal of Japanese Political Economy***, Taylor and Frances.

***Yoshino, N., Taghizadeh Hesary, F. (2014), ‘Analytical Framework on Credit Risks for Financing SMEs in Asia’. Asia-Pacific Development Journal. United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)***