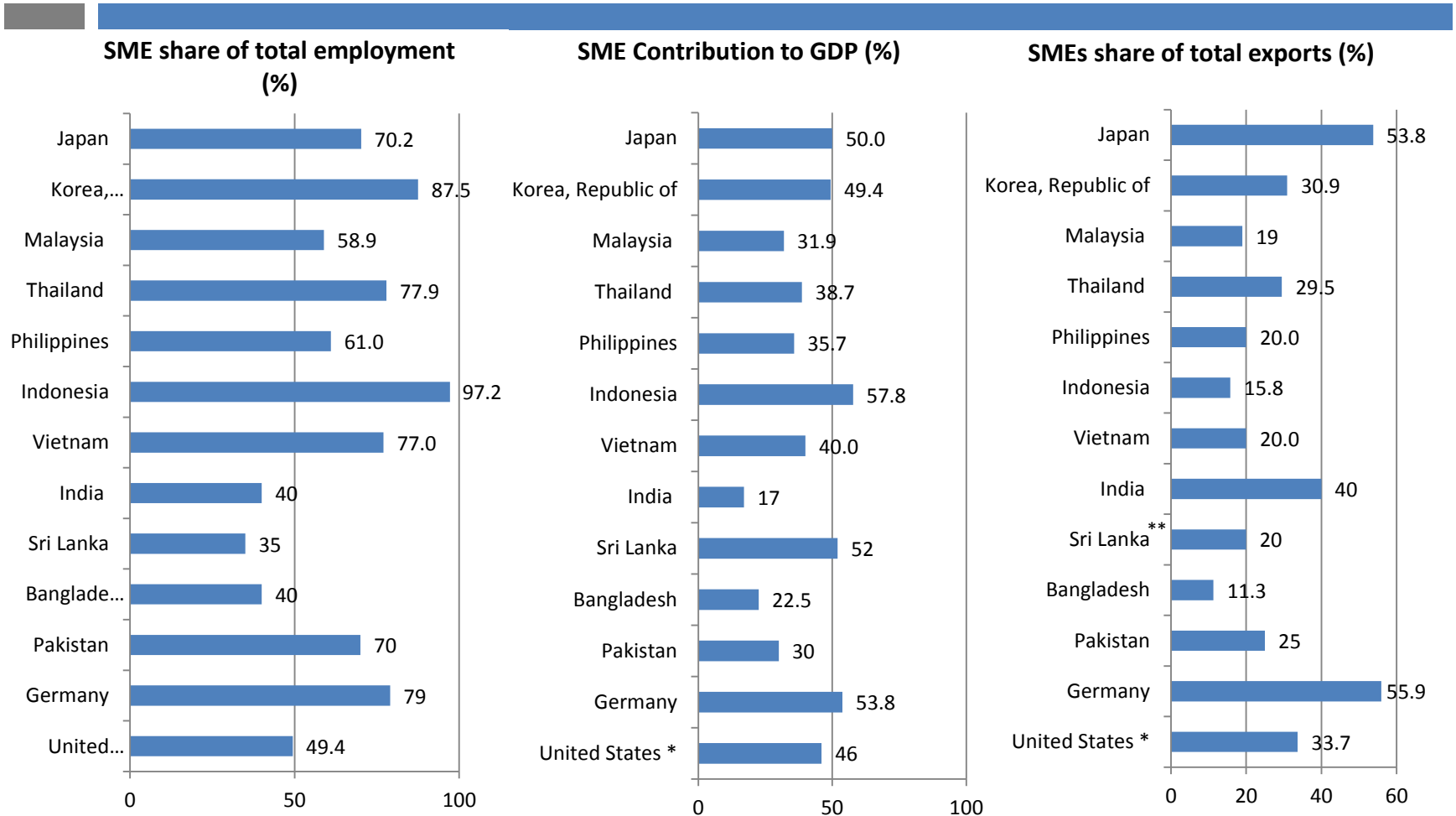# SMEs Internationalization and Finance in Asia

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Asian Development Bank Institute

Frontier and Developing Asia:
Supporting Rapid and Inclusive Growth
IMF-JICA Conference
Tokyo
18 February 2015

SMEs Contribute Much to Economic Activity but Less to Trade in Asia

SME share of total employment (%)

Country	Value
Japan	70.2
Korea,...	87.5
Malaysia	58.9
Thailand	77.9
Philippines	61.0
Indonesia	97.2
Vietnam	77.0
India	40
Sri Lanka	35
Banglade...	40
Pakistan	70
Germany	79
United...	49.4

SME Contribution to GDP (%)

Country	Value
Japan	50.0
Korea, Republic of	49.4
Malaysia	31.9
Thailand	38.7
Philippines	35.7
Indonesia	57.8
Vietnam	40.0
India	17
Sri Lanka	52
Bangladesh	22.5
Pakistan	30
Germany	53.8
United States *	46

SMEs share of total exports (%)

Country	Value
Japan	53.8
Korea, Republic of	30.9
Malaysia	19
Thailand	29.5
Philippines	20.0
Indonesia	15.8
Vietnam	20.0
India	40
Sri Lanka **	20
Bangladesh	11.3
Pakistan	25
Germany	55.9
United States *	33.7

Note:
SME definition varies by country.
Use most recently available data
* percent of the private nonfarm GDP in 2008
** estimate
Source: Various statistical agencies (ASEAN SME data, Business in Asia, DTI Philippines, PRC Ministry of Industry and Information Technology, European Commission fact sheet, Small Business and Entrepreneurship Council)
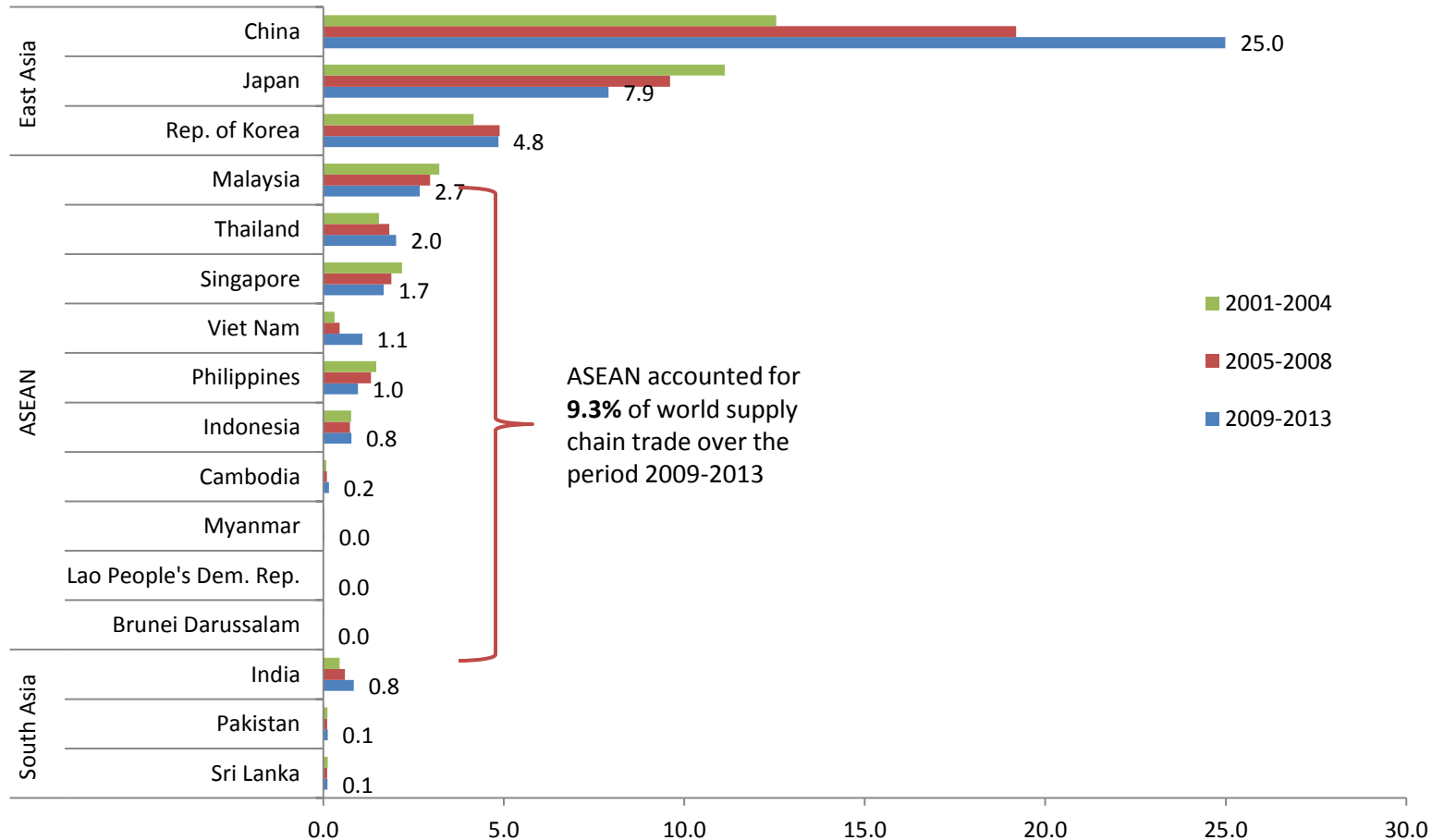
2

Outline

1. Role of SMEs in supply chain trade and firm-level characteristics – Evidence from Southeast Asian Firms

2. SME finance and characteristics of bank borrowers – Evidence from Southeast Asian and PRC firms

3. Characteristics of Asian financial markets

4. Analysis of SME credit risk using Asian data

5. Possible solutions

6. Conclusions

SMEs in Supply Chain Trade in Asia
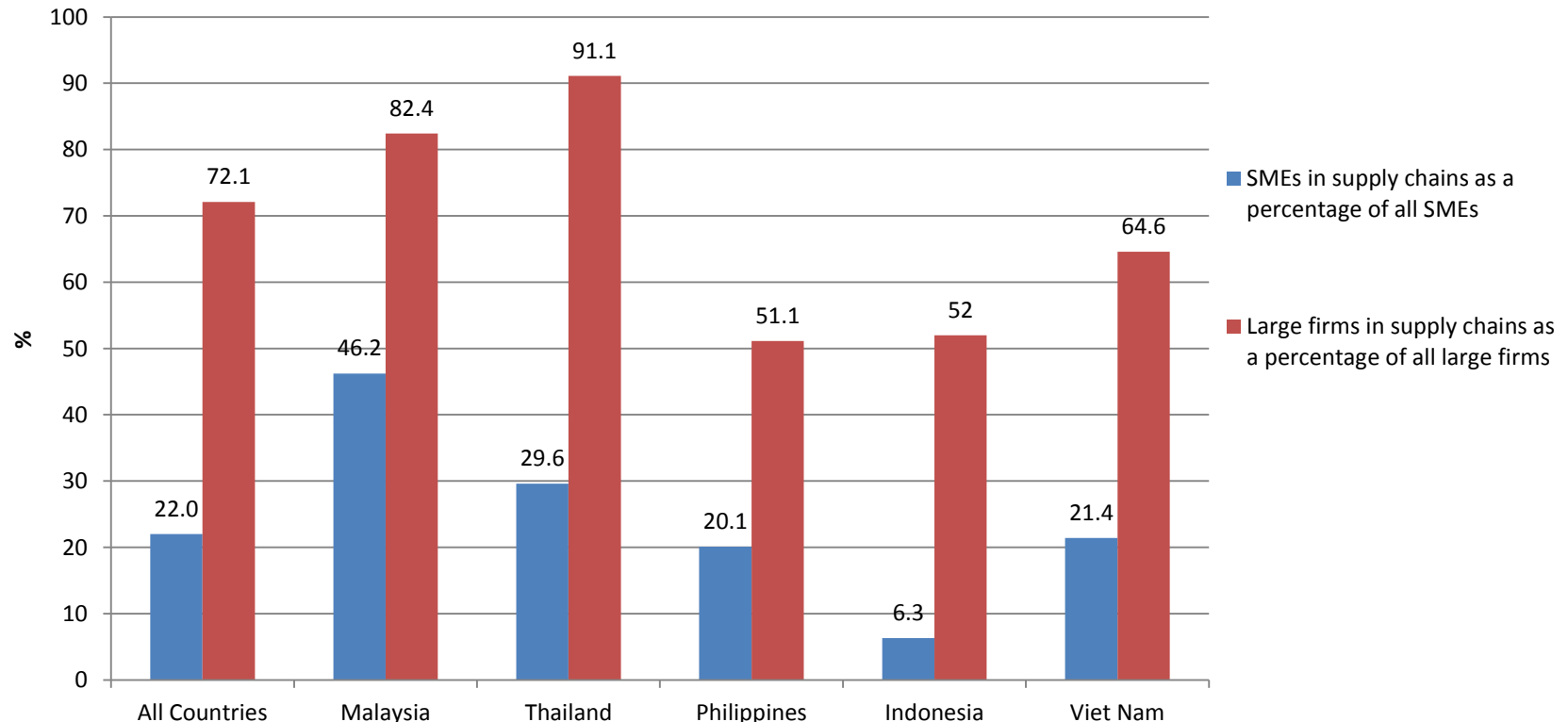
Share of world supply chain exports, 2009-2013 (%)

East Asia
- China — 25.0
- Japan — 7.9
- Rep. of Korea — 4.8

ASEAN
- Malaysia — 2.7
- Thailand — 2.0
- Singapore — 1.7
- Viet Nam — 1.1
- Philippines — 1.0
- Indonesia — 0.8
- Cambodia — 0.2
- Myanmar — 0.0
- Lao People's Dem. Rep. — 0.0
- Brunei Darussalam — 0.0

South Asia
- India — 0.8
- Pakistan — 0.1
- Sri Lanka — 0.1

Legend: 2001-2004, 2005-2008, 2009-2013

ASEAN accounted for **9.3%** of world supply chain trade over the period 2009-2013

Note: Supply chain trade is defined as trade in parts and components using the gross trade approach of Athukorala (2011)

4

SMEs and Large Firms in Supply Chain Trade in Southeast Asia*

- SME engagement varies by economy. Large firms dominate.

Role of large firms and SMEs in supply chains

Legend:
- SMEs in supply chains as a percentage of all SMEs
- Large firms in supply chains as a percentage of all large firms

Data values:
	All Countries	Malaysia	Thailand	Philippines	Indonesia	Viet Nam
SMEs	22.0	46.2	29.6	20.1	6.3	21.4
Large firms	72.1	82.4	91.1	51.1	52	64.6

Note: * Direct exporters and tier 1 suppliers only. Tier 2 suppliers excluded.

Source: Wignaraja, G., (2013), "Can SMEs participate in global production networks", in Elms, D., and Low, P., (ed), *Global Value Chains in a Changing World*, World Trade Organization: Geneva

What Explains Entry into Supply Chain Trade in Southeast Asia?

- Various attempts to measure supply chain trade (e.g. trade in value added) but little on the characteristics of firms in supply chains in Asia
- Wignaraja (2013) examines 5,900 firms in 5 Southeast Asian economies (Malaysia, Thailand, Philippines, Indonesia and Vietnam). World Bank data collected by random sampling
- Main findings:
  - ✓ Firm heterogeneity matters
  - ✓ Higher SME engagement in some economies but large firms dominate
  - ✓ Apart from **firm size**, **technological capabilities, skills, access to credit and foreign ownership** affect whether firms join supply chains
  - ✓ Tackling residual supply-side and policy constraints can further firms, including SMEs, joining supply chains
  - ✓ Caution about use of cluster policies and selective interventions to promote SME engagement in supply chains

Factors Influencing Joining Supply Chain Trade in Southeast Asian Firms

Variable	All firms in Supply Chains		SMEs in Supply Chains	
	Sign	Significance	Sign	Significance
Firm Size	+	1%	+	1%
Firm Size squared	-	1%		
Firm Age	-	10%	-	10%
Firm ISO certified	+	1%	+	1%
Firm has Patents	+	1%	+	1%
GM has degree	+	5%	+	
GM's experience	+		+	
Workers have HS education	+	1%	+	1%
Foreign Ownership	+	1%	+	1%
Access to Credit	+	1%	+	10%
Country Dummies	-/+	1-10%	+/-	1-5%

*Dependent variable is binary: 1 if part of production network, 0 otherwise.

SMEs Face Many Barriers, Including Access to Finance

	All countries	Malaysia	Thailand	Philippines	Indonesia	Viet Nam
Incentives						
Tax rates	31.9	31.1	54.8	42.9	14.3	16.5
Tax administration	26.7	24.0	49.6	34.2	13.3	12.4
Customs and trade regulations	20.0	20.1	41.0	18.0	12.5	8.7
Business licensing and permits	16.7	16.4	25.4	22.1	16.5	2.8
Political instability/ economic uncertainty	34.7	28.8	84.0	28.9	29.5	2.3
Supply side						
Transport	23.8	11.3	33.6	26.5	23.2	24.2
Electricity	29.6	17.9	42.4	30.6	30.2	26.7
Telecommunication	10.4	9.3	24.5	7.6	6.6	3.8
Access to finance/credit	34.6	22.1	44.3	28.5	38.6	39.4
Inadequately-educated labor force	28.0	24.1	60.2	16.8	15.4	23.7
Labor regulations	17.4	17.2	35.2	15.5	11.3	8.0
Access to land	16.0	11.1	11.7	9.6	19.2	28.3
Other						
Crime, theft and disorder	24.5	25.3	53.7	16.5	21.4	5.8
Corruption	30.1	20.6	59.7	37.4	23.4	9.5
Practices of competitors in informal sector	38.6	20.7	55.9	44.5	36.6	35.3

SME Access to Finance in Asia

Figure 4. Formal SME sector—Total credit gap

In South and East Asia and the Pacific approximate 9 million of all formal SMEs do not have sufficient access to finance (IFC, 2013).
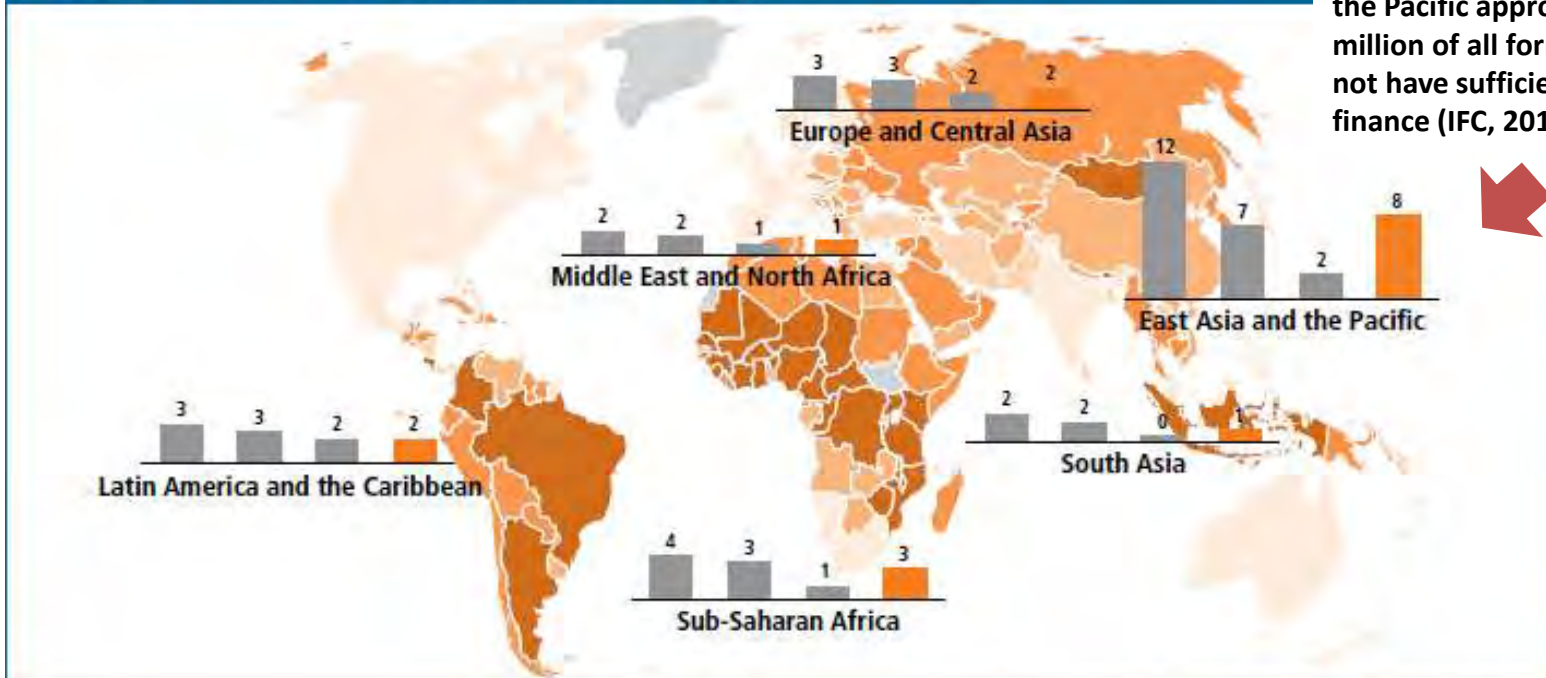
Source: IFC Enterprise Finance Gap Database (2011)

Note: Credit gap" is the difference between formal credit provided to SMEs and total estimated potential need for formal credit based on McKinsey & Co. estimates.
Uses the IFC Enterprise Finance Gap Database (2011)
Source: From the IFC report "Closing the Credit Gap for Formal and Informal MSMEs" (2013)

SME Credit Gap Varies Across Asia

Region	Country	Total Credit Gap (US $ Billions)	Average Credit value Gap per Enterprise (US$)
ASEAN	Singapore	7.1	856,000
	Brunei Darussalam	7.2	736,000
	Malaysia	8	126,000
	Thailand	11.8	126,000
	Philippines	2	59,000
	Cambodia	0.4	50,000
	Vietnam	4.3	42,000
	Indonesia	11.8	29,000
	Lao PDR	0.2	13,000
East Asia	Hong Kong	10.2	733,000
	Republic of Korea	28.5	503,000
	PRC	62.7	44,000
South Asia	Sri Lanka	0.1	54,000
	India	3.4	54,000
	Pakistan	2.9	51,000
	Bangladesh	1.8	17,000

Note: "Credit gap" is the difference between formal credit provided to SMEs and total estimated potential need for formal credit based on McKinsey & Co. estimates.
Source; IFC Enterprise Finance Gap Database (2011).

Sources of Finance for Investment Projects of SMEs in Asia
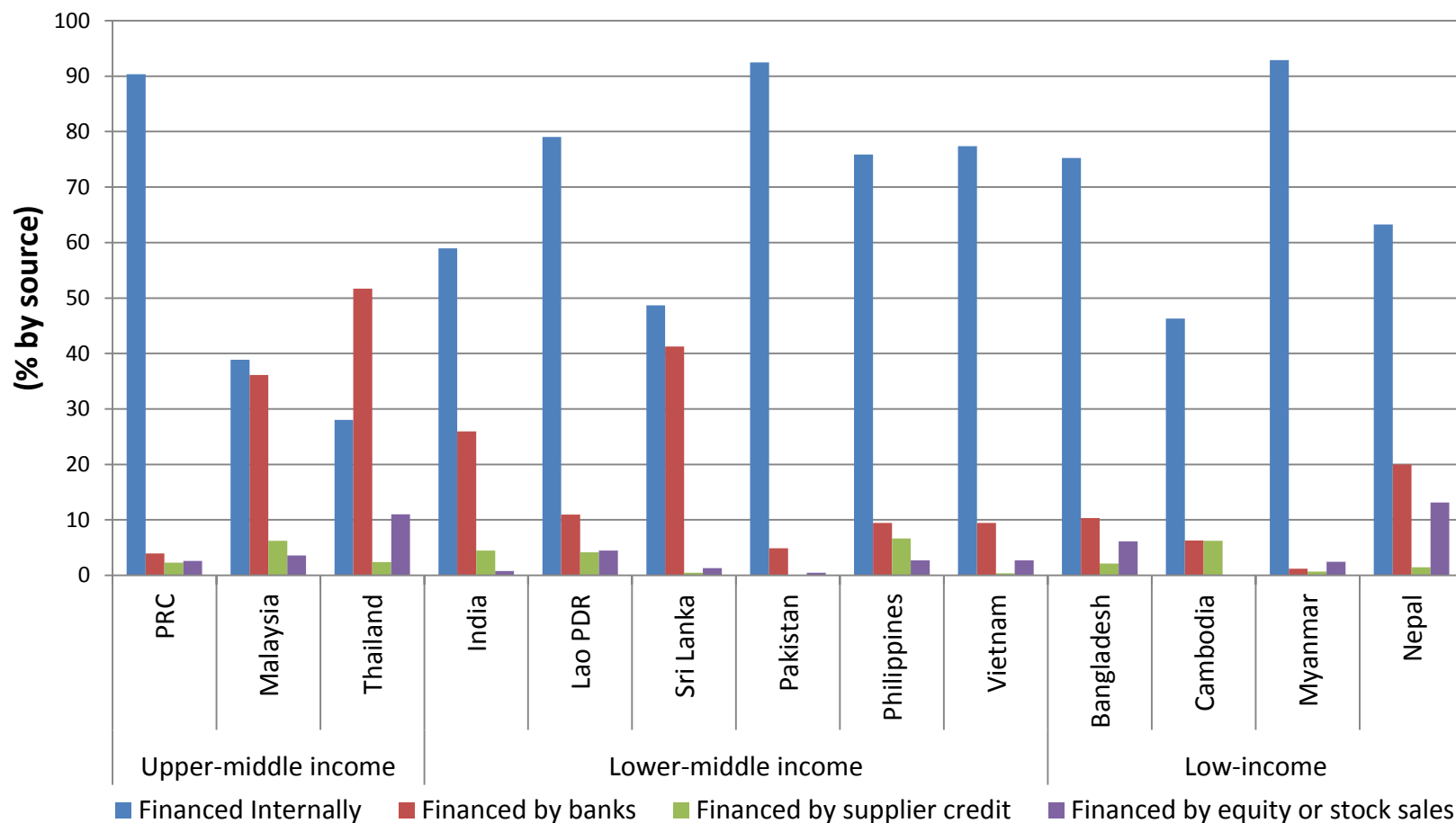
Note:
SME is defined as firms with less than 100 employees
Use the most recently available data
Source: Author's calculations using World Bank Enterprise Survey Data

Explaining Bank Borrowing by SMEs in PRC and Southeast Asia

- Wignaraja and Jinjarak (2015) examine the relationship between firm characteristics and finance in SMEs in PRC and Southeast Asian economies
- Recent micro data on over 8000 firms from PRC and Southeast Asia (Indonesia, Malaysia, Philippines, Thailand, and Viet Nam)
- Key findings from the study include:
    1. SMEs typically resort more to **internal sources** rather than external to finance their activity
    2. With external finance, SMEs typically use non-bank sources more than banks
    3. **SMEs which borrow from banks undergo financial audits and tend to be older and also be exporting**
    4. Personal assets of SME owners tend to matter more as collateral for SME borrowing from banks

Influence of Firm Characteristics on Bank Borrowing in PRC and Southeast Asia

Y = Bank Borrowing (% working capital)	Firm Size (number of employees)			
	≤ 25	> 25 & ≤ 100	> 100 & 250 ≤	> 250
Firm age	.52	.37	.49	.30
	(.21)**	(.14)***	(.16)***	(.13)**
Export participation	.30	.15	.12	.10
	(.09)***	(.05)***	(.05)**	(.05)**
Foreign ownership	-21.77	-29.83	-15.42	-21.93
	(8.51)**	(4.23)***	(4.60)***	(3.94)***
Managerial experience	-.52	-.45	.10	.28
	(.22)**	(.15)***	(.19)	(.16)*
Financial audit	**9.37**	**1.27**	**3.97**	**8.89**
	(4.30)**	**(3.16)**	**(4.58)**	**(4.46)****
ISO certification	-18.23	-11.54	-6.88	-1.26
	(6.60)***	(3.18)***	(3.99)*	(4.03)
Labor Intensive Industries	5.44	9.13	20.11	17.07
	(5.53)	(4.67)*	(6.76)***	(6.50)***
Capital Intensive Industries	16.12	12.62	20.14	2.52
	(5.01)***	(4.13)***	(6.16)***	(6.05)
constant	-73.61	-26.43	-38.62	-22.15
	(6.26)***	(5.31)***	(8.00)***	(8.08)***
observations	2,859	2,729	1,336	1,156

Note: This table reports regression results of lender type (dummy dependent variable) on firm characteristics (control variables) for firms at different sizes. The estimation method is Probit. The analysis pools firm observations across PRC, Malaysia, Thailand, Indonesia, Philippines, and Viet Nam. Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.

Source: Wignaraja, G., and Jinjarak, Y., (2015). "Why SMEs Do Not Borrow from Banks? Evidence from People's Republic of China and Southeast Asia". *ADBI Working Paper, No. 509*.

# Personal Assets Matter as Collateral for SME Borrowing from Banks in PRC and Southeast Asia

Y = Collateral in Use	Probit Estimation: Probability of Collateral Type		
	Personal Assets	**Account Receivables**	**Properties & Equipment**
SME dummy variable	.22	-.42	-.44
	(.12)*	(.13)***	(.10)***
Firm age	-.02	-.01	-.01
	(.00)***	(.01)**	(.00)
Export participation	.00	.00	-.00
	(.00)	(.00)	(.00)*
Foreign ownership	-.76	-.09	-.26
	(.18)***	(.16)	(.12)**
Managerial experience	.01	.01	.01
	(.01)*	(.01)	(.00)**
Financial audit	-.24	.01	-.44
	(.10)**	(.13)	(.10)***
ISO certification	-.24	.41	-.17
	(.12)**	(.13)***	(.10)*
Labor Intenstive Industries	.30	.13	.51
	(.14)**	(.19)	(.13)***
Capital Intensive Industries	.12	.25	.24
	(.13)	(.17)	(.11)**
constant	-.70	-1.37	.80
	(.18)***	(.23)***	(.16)***
observations	981	981	981

Note: This table reports regression results of collateral type (dummy dependent variable) and collateral/loan value (continuous dependent variable) on firm characteristics (control variables) for firms at different sizes. The estimation method is Probit. The analysis pools firm observations across PRC, Malaysia, Thailand, Indonesia, Philippines, and Viet Nam. Standard errors are in parentheses; *** (**, *) denotes statistical significance at 1 (5, 10) percent level.
Source: Wignaraja, G., and Jinjarak, Y., (2015). "Why SMEs Do Not Borrow from Banks? Evidence from People's Republic of China and Southeast Asia". *ADBI Working Paper, No. 509*.

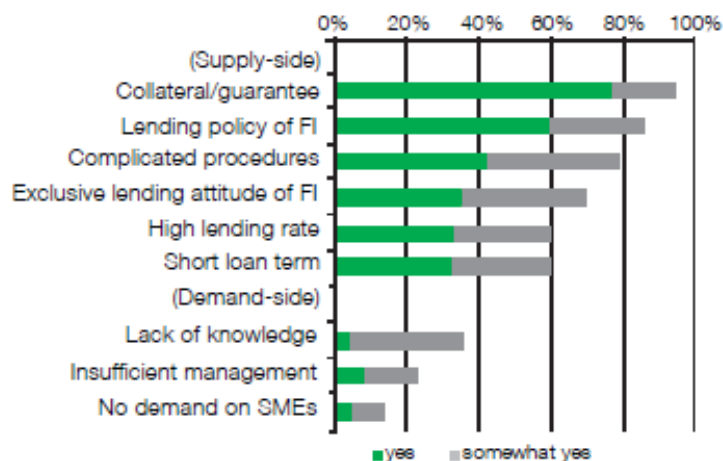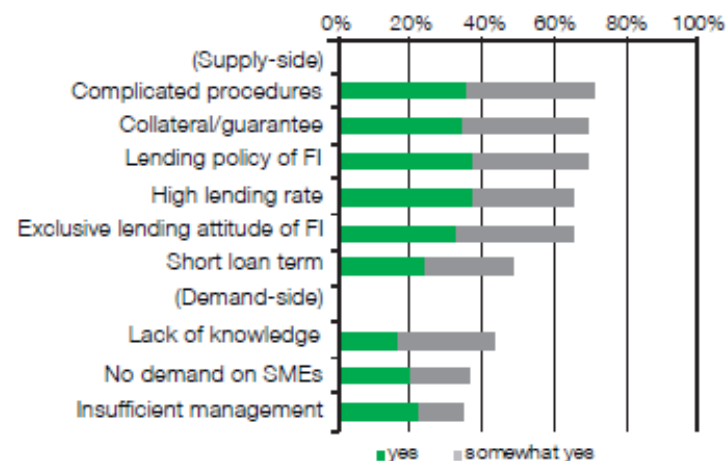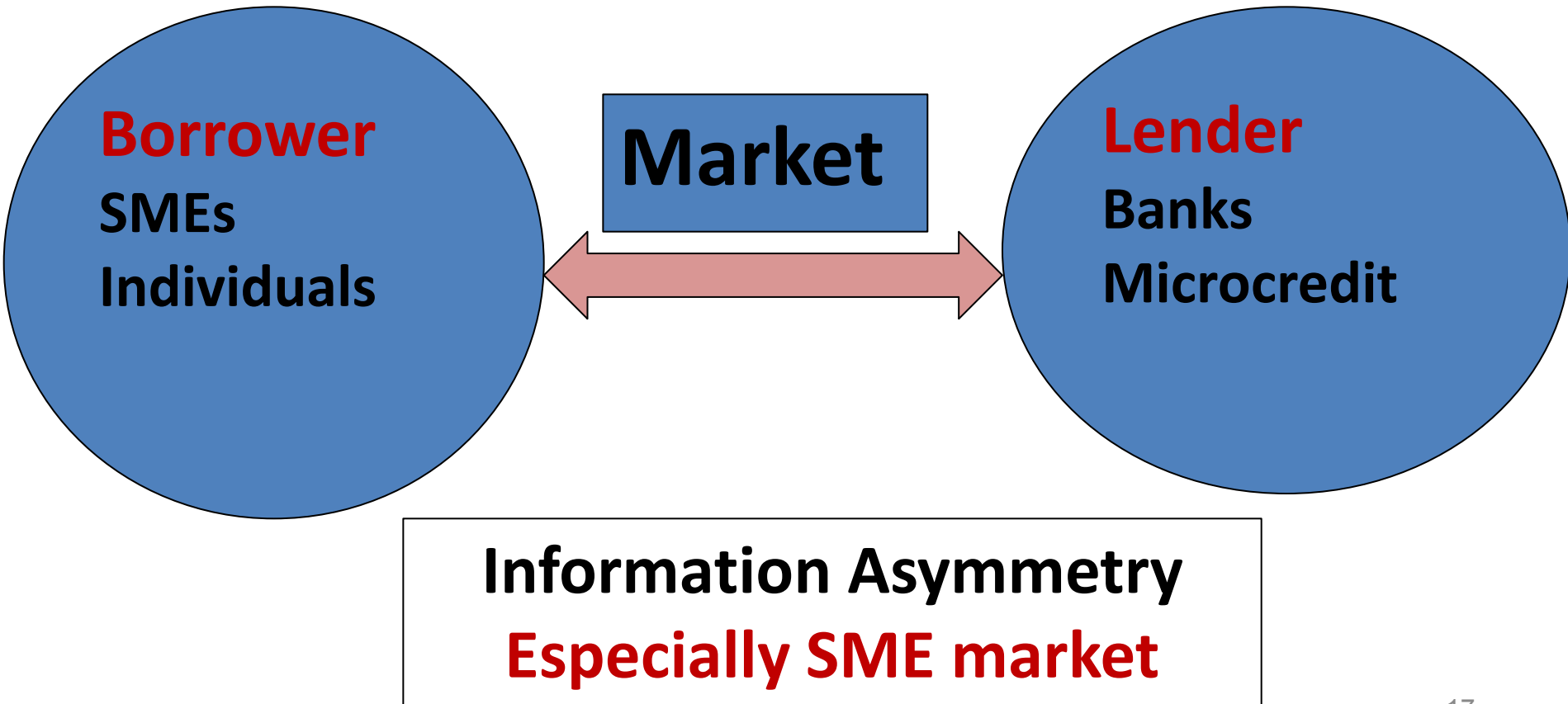# Barriers for SMEs in Accessing Financial Institutions
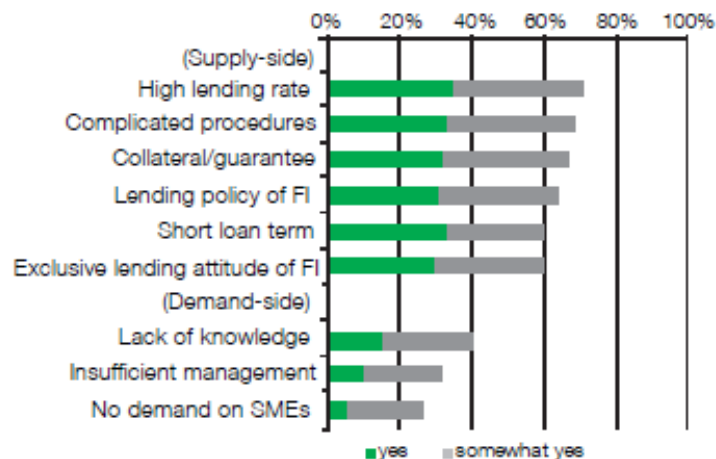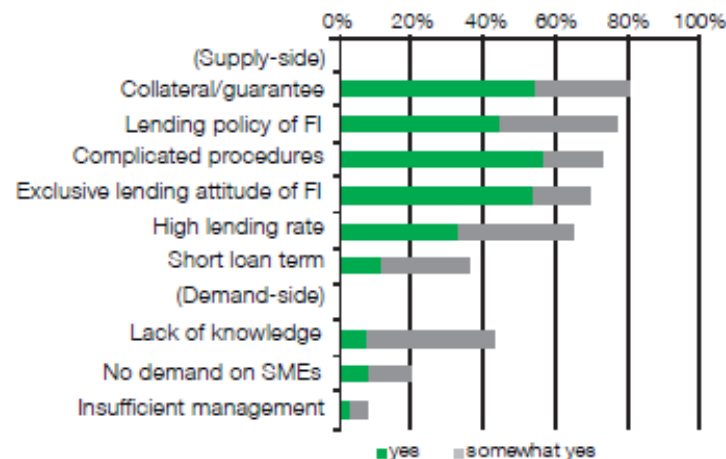
Source: ADB–OECD study on enhancing financial accessibility for SMEs: Lessons from recent crises. Mandaluyong City, Philippines: Asian Development Bank, 2013
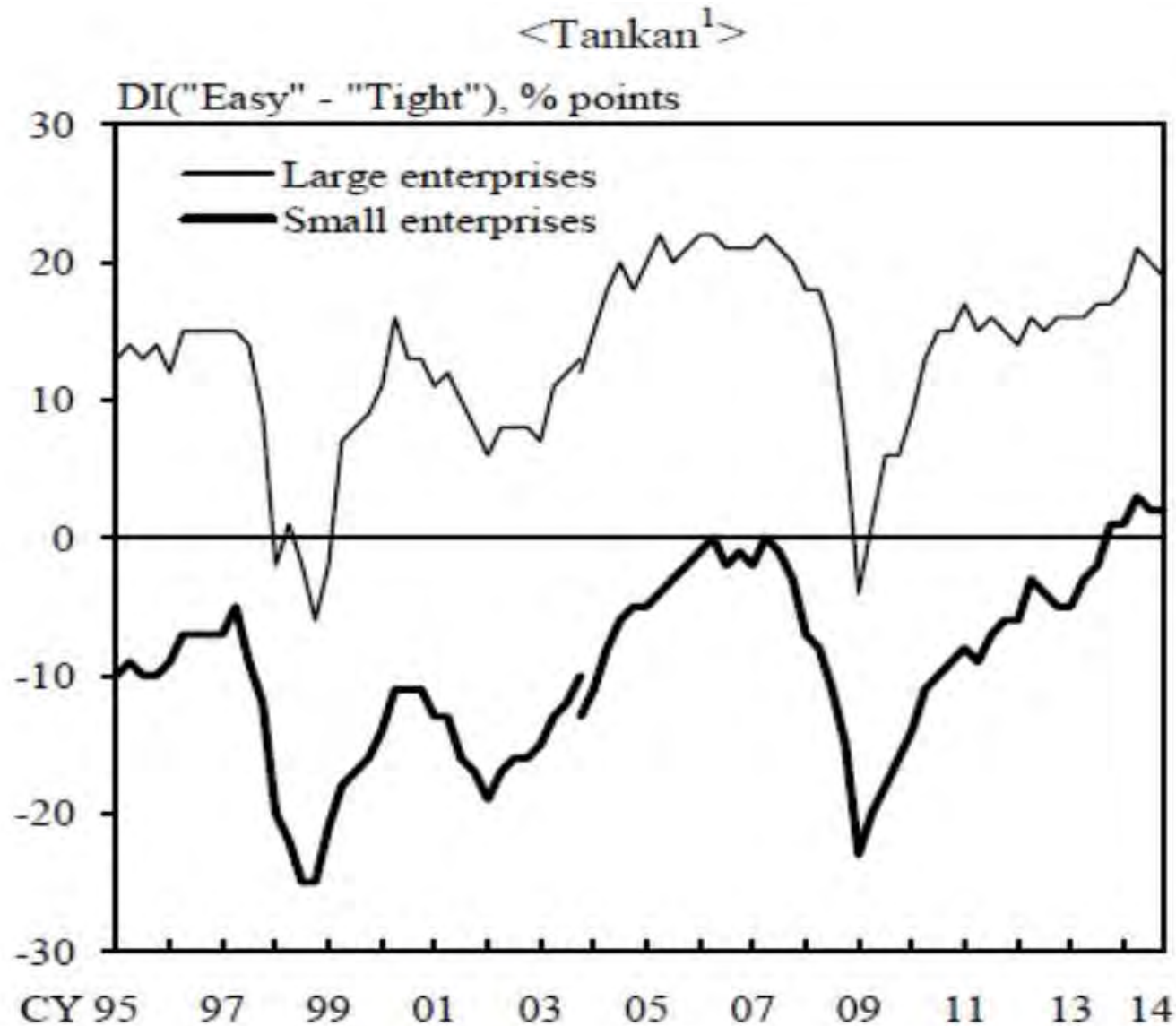
3. Asian Financial Markets' Main Features

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

Borrower, Lender and Market

Borrower
SMEs
Individuals

Market

Lender
Banks
Microcredit

Information Asymmetry
Especially SME market

Access to Finance by SMEs and Large Firms in Japan

$<$Tankan[1]$>$

DI("Easy" - "Tight"), % points

Large enterprises
Small enterprises

4. 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

Dendogram Using Average Linkage
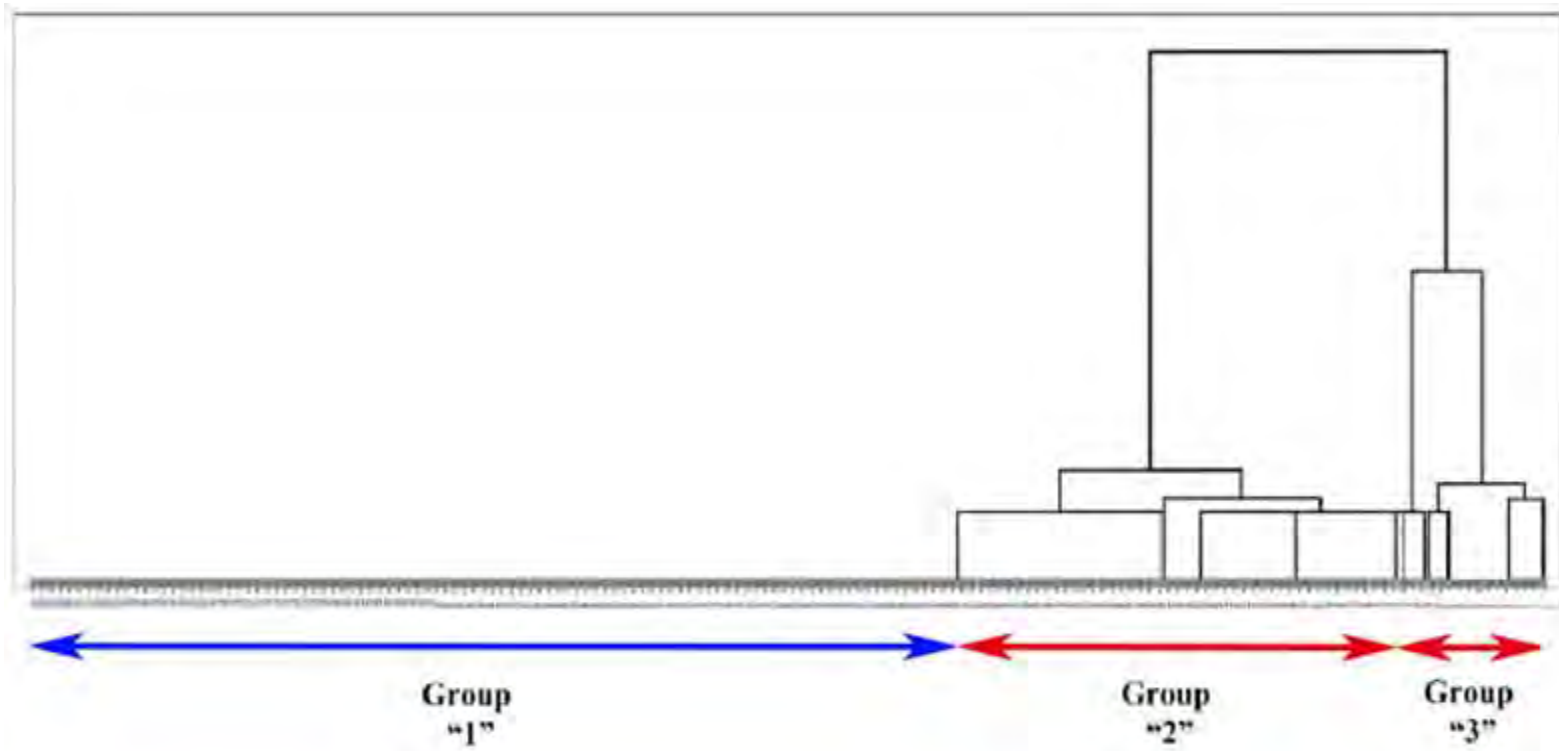
Factor Loadings of Financial Variables after Direct Oblimin Rotation

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

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

Grouping Based on Principal Component Analysis (Z1-Z2) and Cluster Analysis
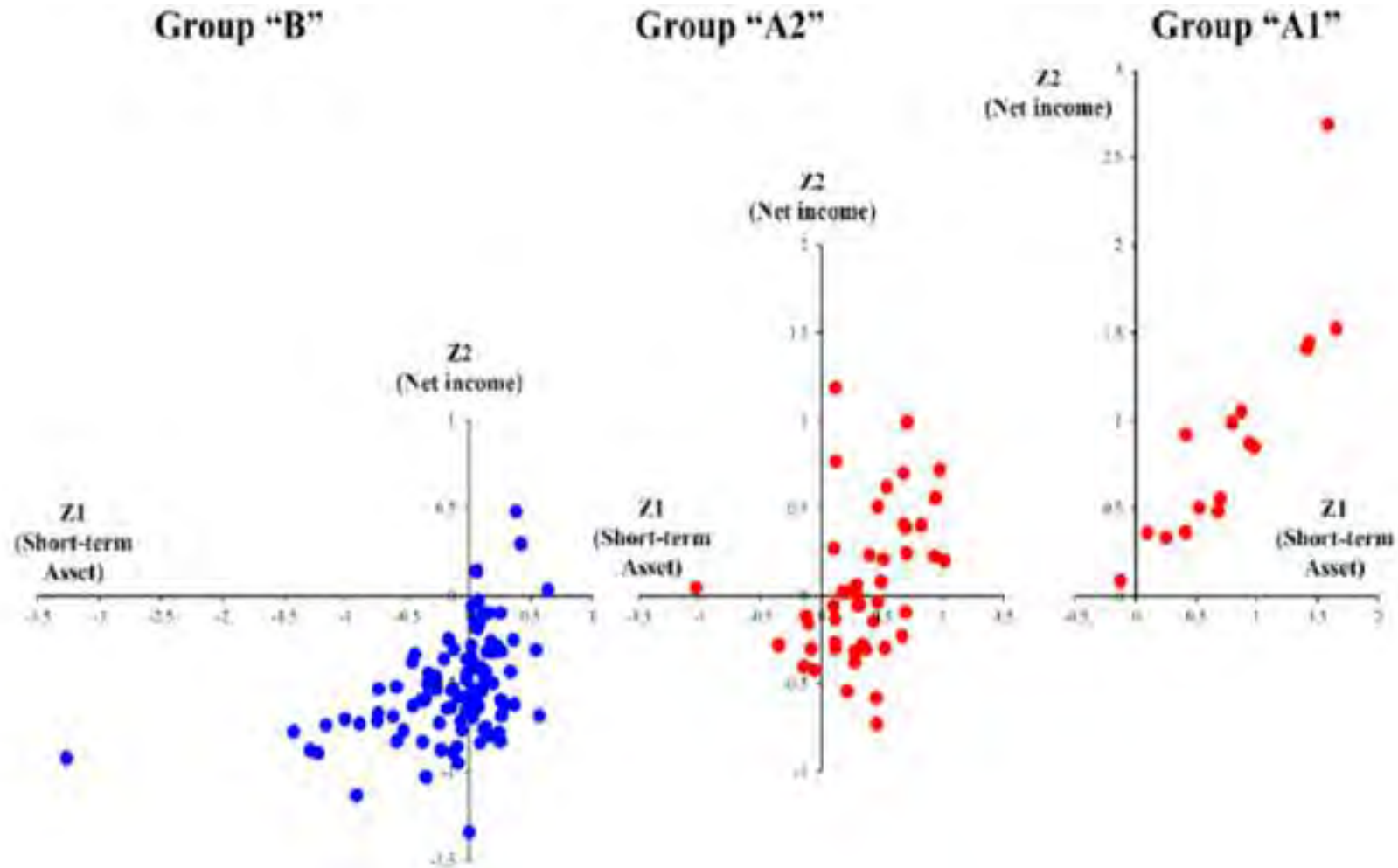
Credit Rating of SMEs using Asian Data

(i) Sales

(ii) Assets

(iii) Liquidity (Cash)

(iv) Total Debt

Credit Rating for SMEs
by Use of SME Database

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, Credit Guarantee ratio is determined

5, SME data can produce default risk ratio

6, Risk based Interest rate

Financial Education for SMEs
Education Program and Textbooks
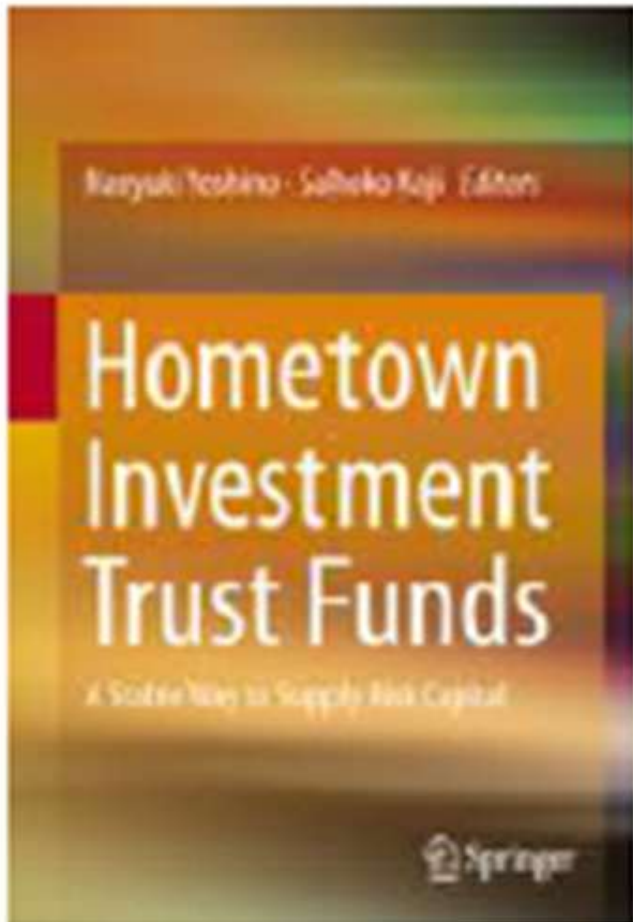
1, Financial Planners Association

Individual Borrowing

2, Central Bank of Japan

Text books, Educate School teachers

Regional Education Program

3, Various Financial Associations

Bankers Association, Stock Exchange

5.A. Hometown Investment

A Stable Way to Supply Risk Capital

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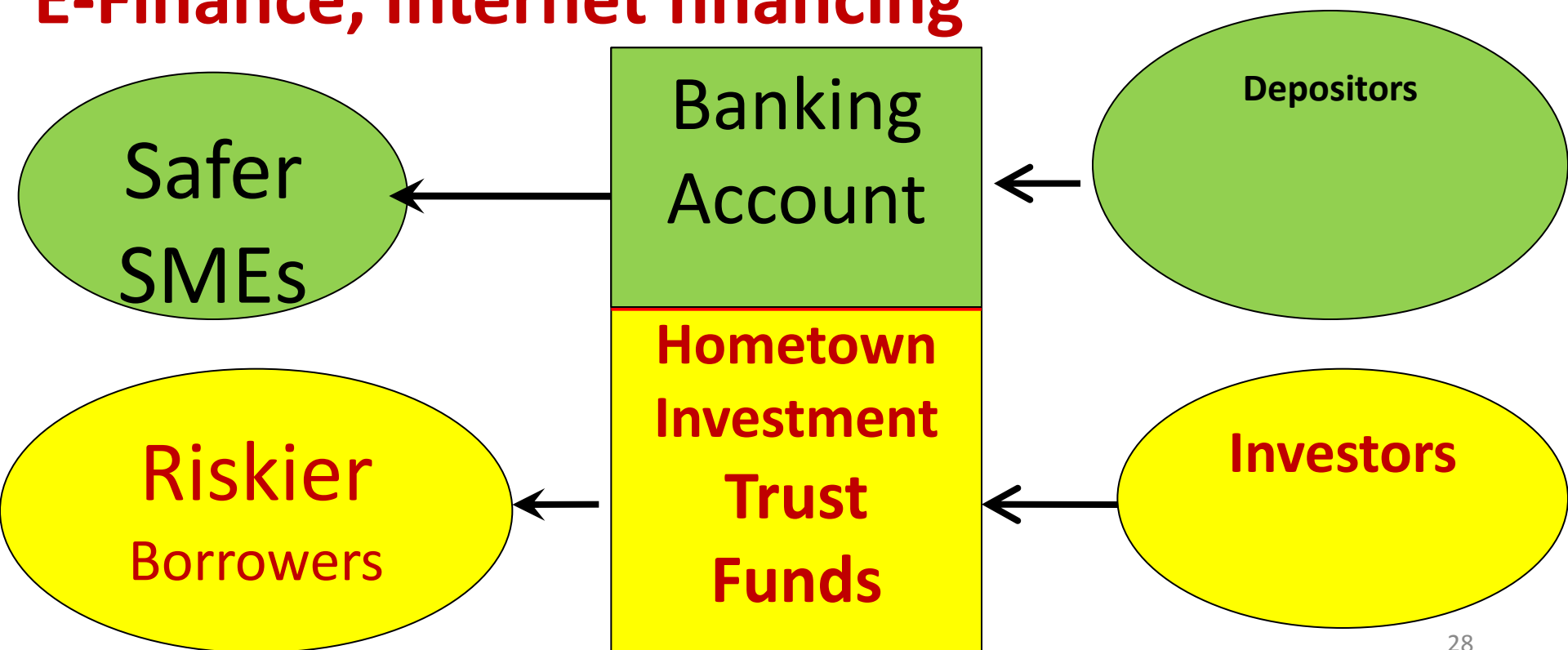
Available Formats:

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

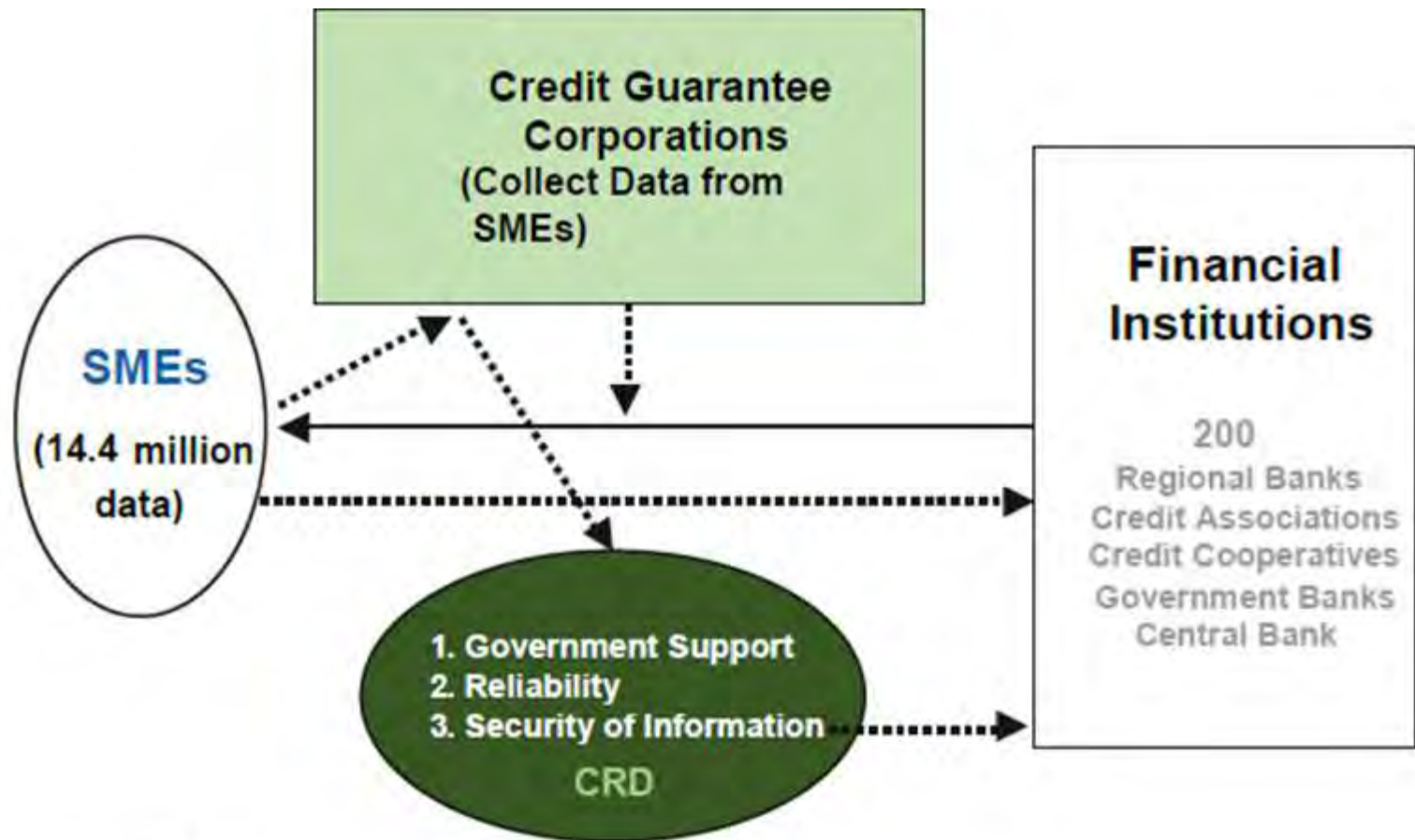# Donation and Investment to community

Agricultural Funds

Beans and Wine

Dec 11 2013 , Tehran -
IRAN

おひさま発電所
「さんぼちゃん1号」

5.B Credit Risk Database of Credit Guarantee

Source: Yoshino (2012).

Credit Guarantee Mechanism

1, Credit Guarantee System

   100% guarantee

    Partial guarantee (80%, 20%)

2, Differential guarantee ratio to each bank

    based on their past performance

3, How to avoid moral hazard ?

4, To reduce information asymmetry

5, Temporary downturn of business

6, Structural downturn of business

7, Costs and Benefits of Credit Guarantee

Optimal Credit Guarantee for SMEs

Policy Objective Function

$$U = w_1 (L-L^*)^2 + w_2 (\rho-\rho^*)^2$$

where $L^* = (1+a)L_{t-1}$ $\qquad$ $\rho^* = \alpha \times \rho_{t-1}$

Banks' Profit Maximization

Max. $\qquad \prod = r_L(L) \times L - \rho(L,Z,P_L) \times L - rD \times D - C(L,D)$

subject to $\qquad (1-\rho) \times L + \rho \times L = D+A$ $\qquad$ Banks' B/S

where Z = credit guarantee, PL = land price

Optimal Credit guarantee ratio is obtained as

$$Z^* = f\{(L-L^*), (\rho-\rho^*)、 w_1、 w_2,\ \rho'L、 \rho'Z、 d_1)$$

--> **Optimal credit guarantee ratio is not 100%.**

5.C Regulation of Money Lenders in Rural Regions

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 requirement

(iv) Paper test to run business

(v) Self regulatory organization was set up
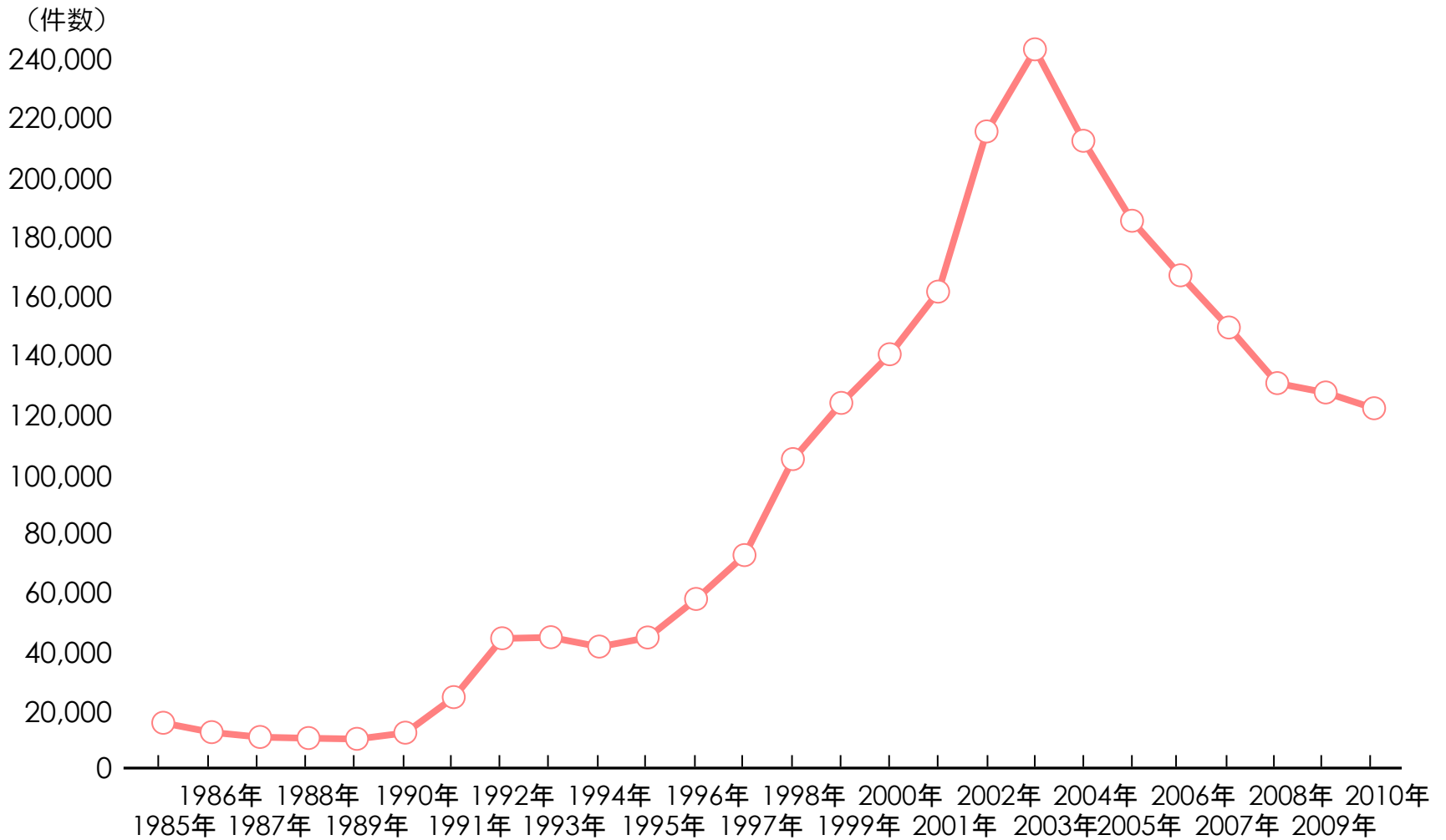
     two steps of monitoring and supervision

(vi) Consumers' complaints

New Law – Microcredit Regulation consumer education

1, Total Amount of Borrowing < 1/3 of Income

2, Ceiling Interest Rate = 20%

      more than 100% → 29% → 20%

3, Borrowers Information

       Aggregated total individual borrowings

4, Paper examination to be a lender

5, Minimum capital requirement

6, Consumer complaints and advices

Number of Households' Default

（件数）

240,000
220,000
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0

1985年 1986年 1987年 1988年 1989年 1990年 1991年 1992年 1993年 1994年 1995年 1996年 1997年 1998年 1999年 2000年 2001年 2002年 2003年 2004年 2005年 2006年 2007年 2008年 2009年 2010年

6. Conclusions

- SMEs are important to economic activity in Asia but are underrepresented in exports and supply chain trade
- SMEs in supply chains are larger, create technological capability and skills, have greater access to credit and some foreign equity
- Credit gaps affect 9 Million Asian SMEs and many rely on internal or non-bank sources of finance
- SMEs borrowers are older, financially audited and trading firms
- Information asymmetry between lenders and borrowers is large in Asia and adversely affects SMEs
- Analysis of SME credit risk data and financial education for SMEs are useful to reduce information asymmetry and improve access to finance for SMEs
- Possible solutions – Hometown Investment Trust Funds, credit guarantee mechanisms and financial regulation of money lenders
- Market-friendly policies and modern infrastructure also important

Issues for Discussion

1. With increasing Basel Rules, is it appropriate to expect commercial banks to lend to risky SMEs?
2. How might we effectively regulate informal financial sources (e.g. money lenders)?
3. Are these proposed solutions – Hometown Investment Trust Funds, Credit Guarantee Mechanisms and regulation of money lenders – sufficient to provide financial access to SMEs?
4. How might we gather accurate credit information from SMEs?

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Thank you

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