

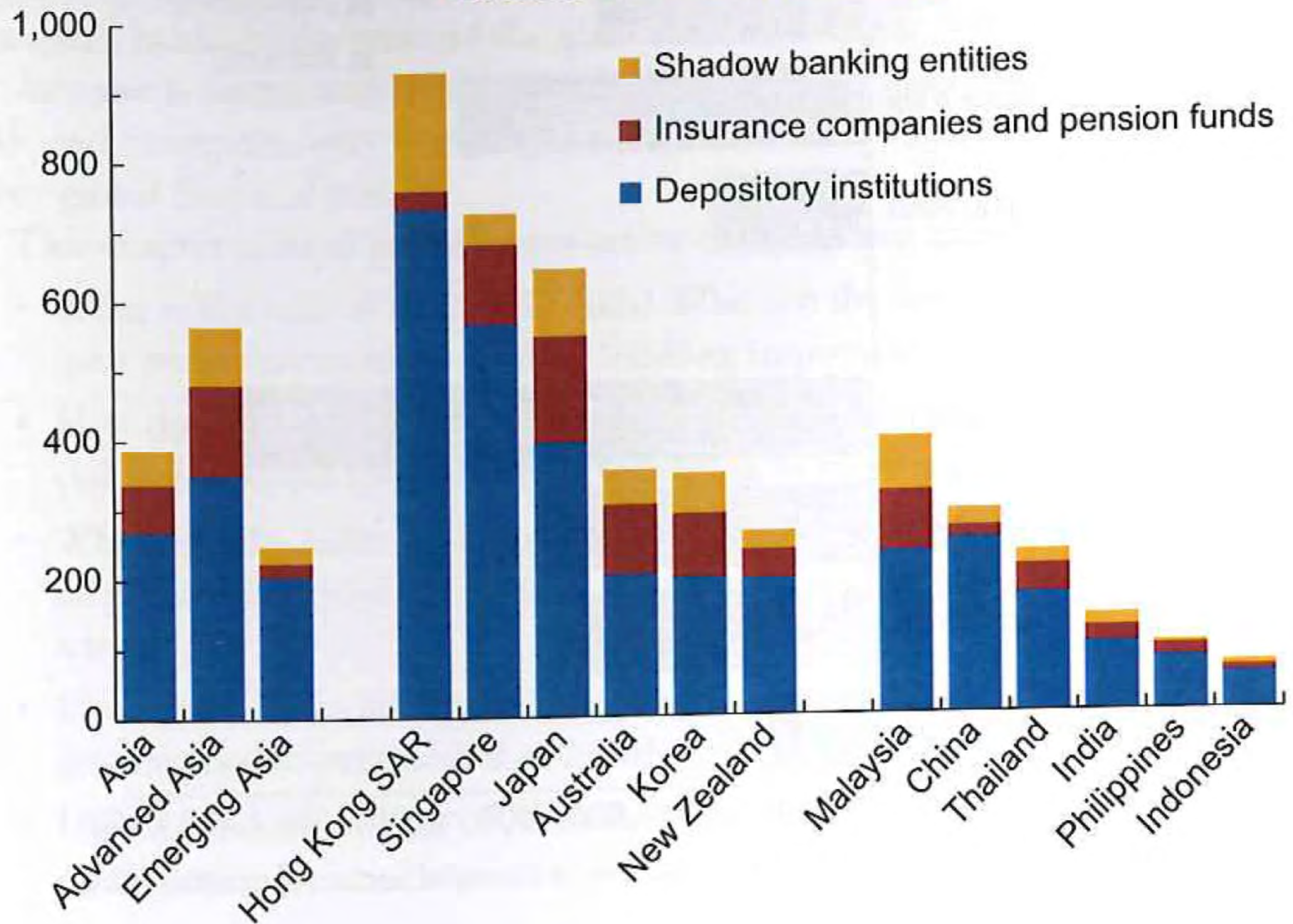
Financial Architecture of Asia

Naoyuki Yoshino

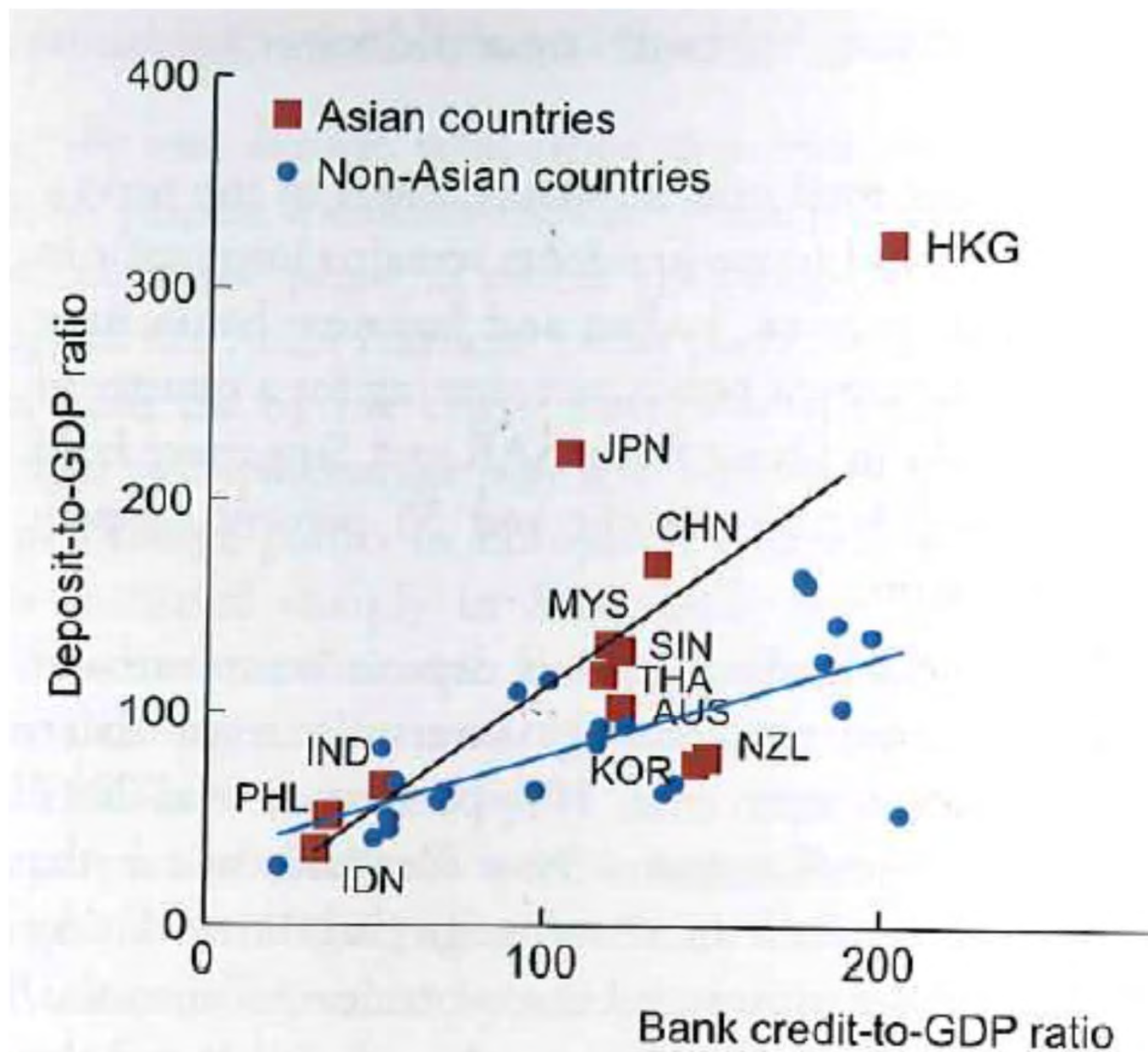
**Dean, Asian Development Bank Institute
(ADBI)**

Professor Emeritus Keio University
nyoshino@adbi.org

1. Assets of Financial Institutions



Bank Deposit to GDP Ratio



2. Market Values of Financial Markets

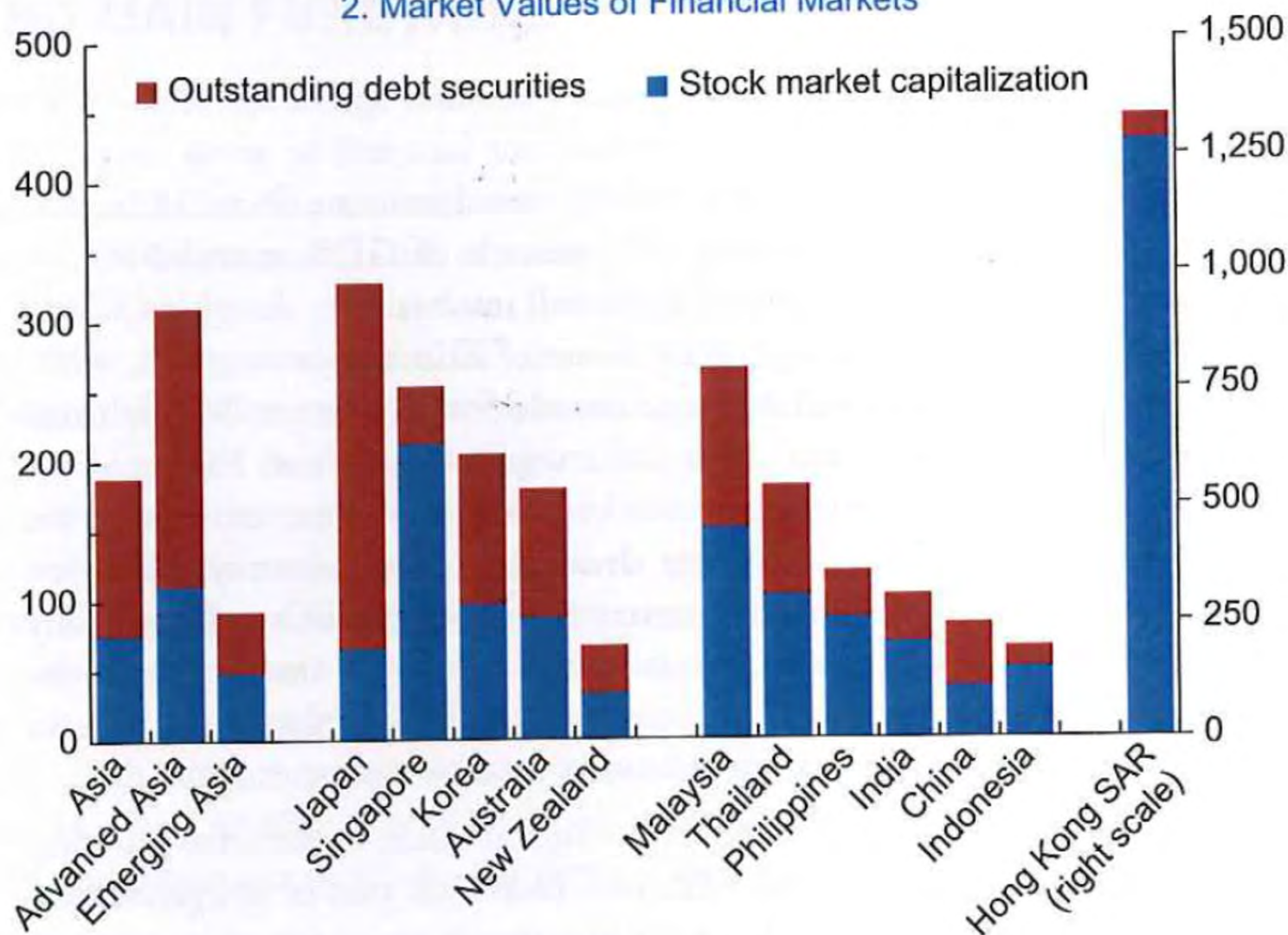


Figure 2.2 Structure of Asia's Financial Sector (Percent of GDP, end-2012)

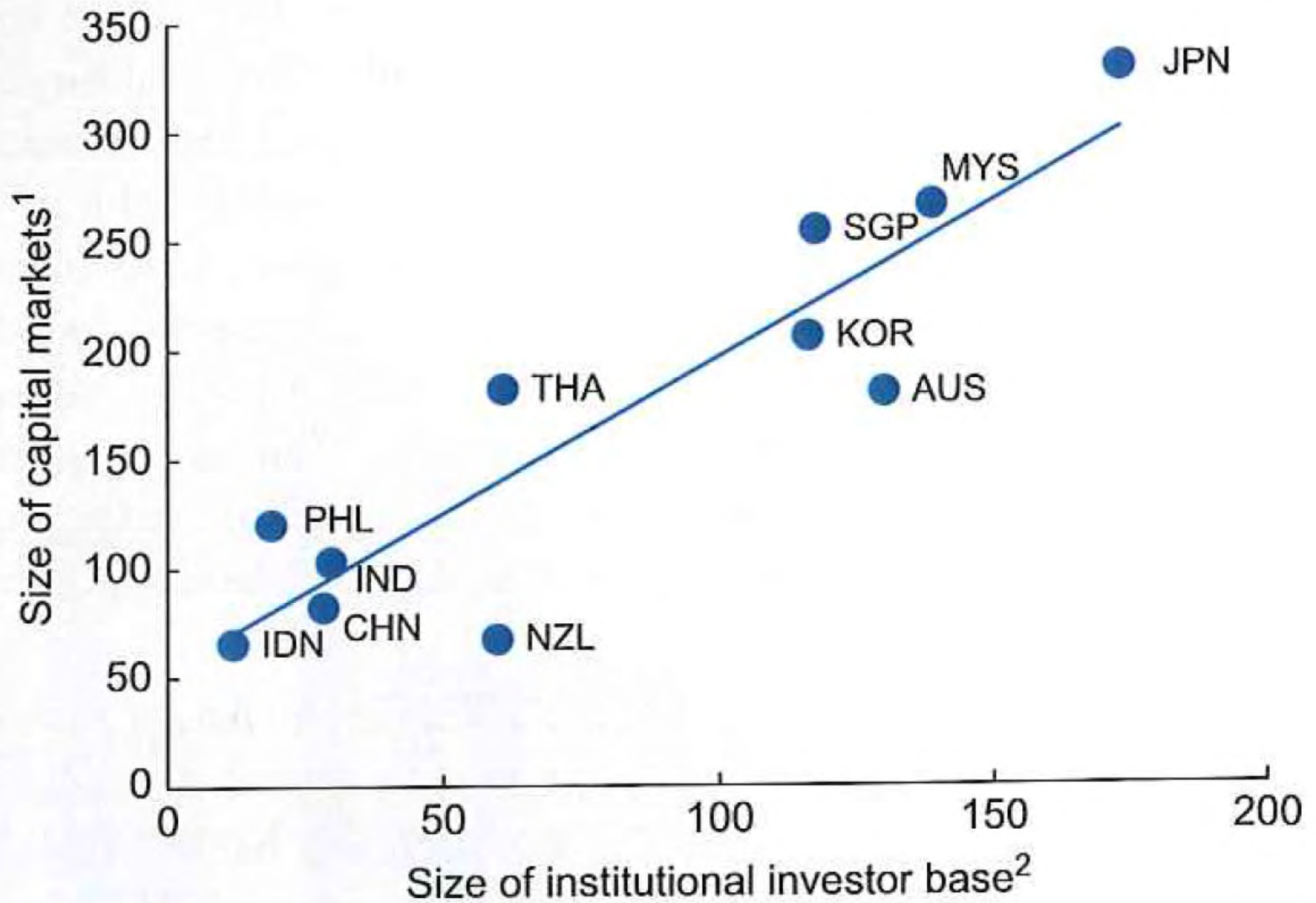


Figure 2.3 Asia: Institutional Investors and Capital Markets (*Percent of GDP*)

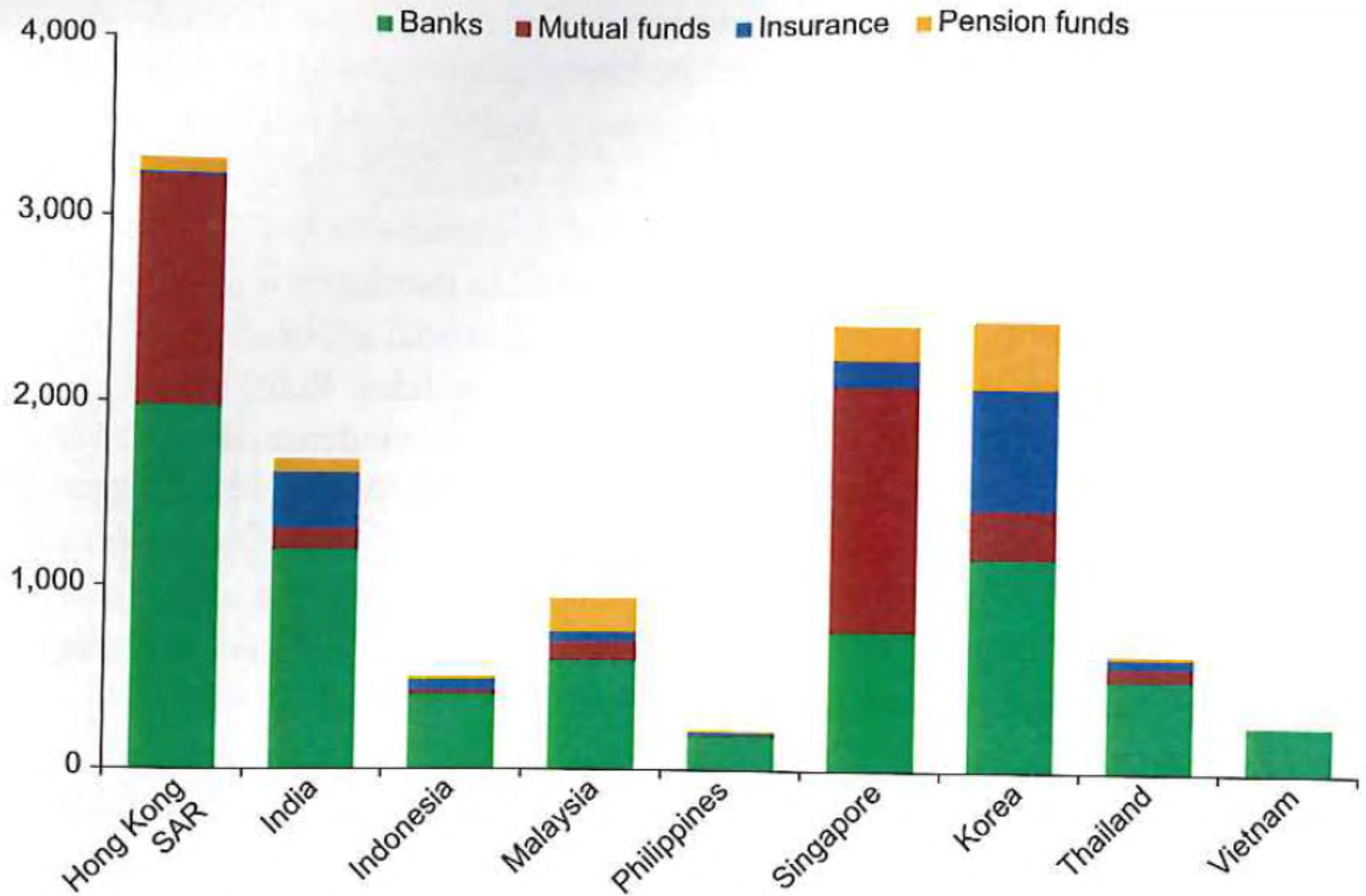
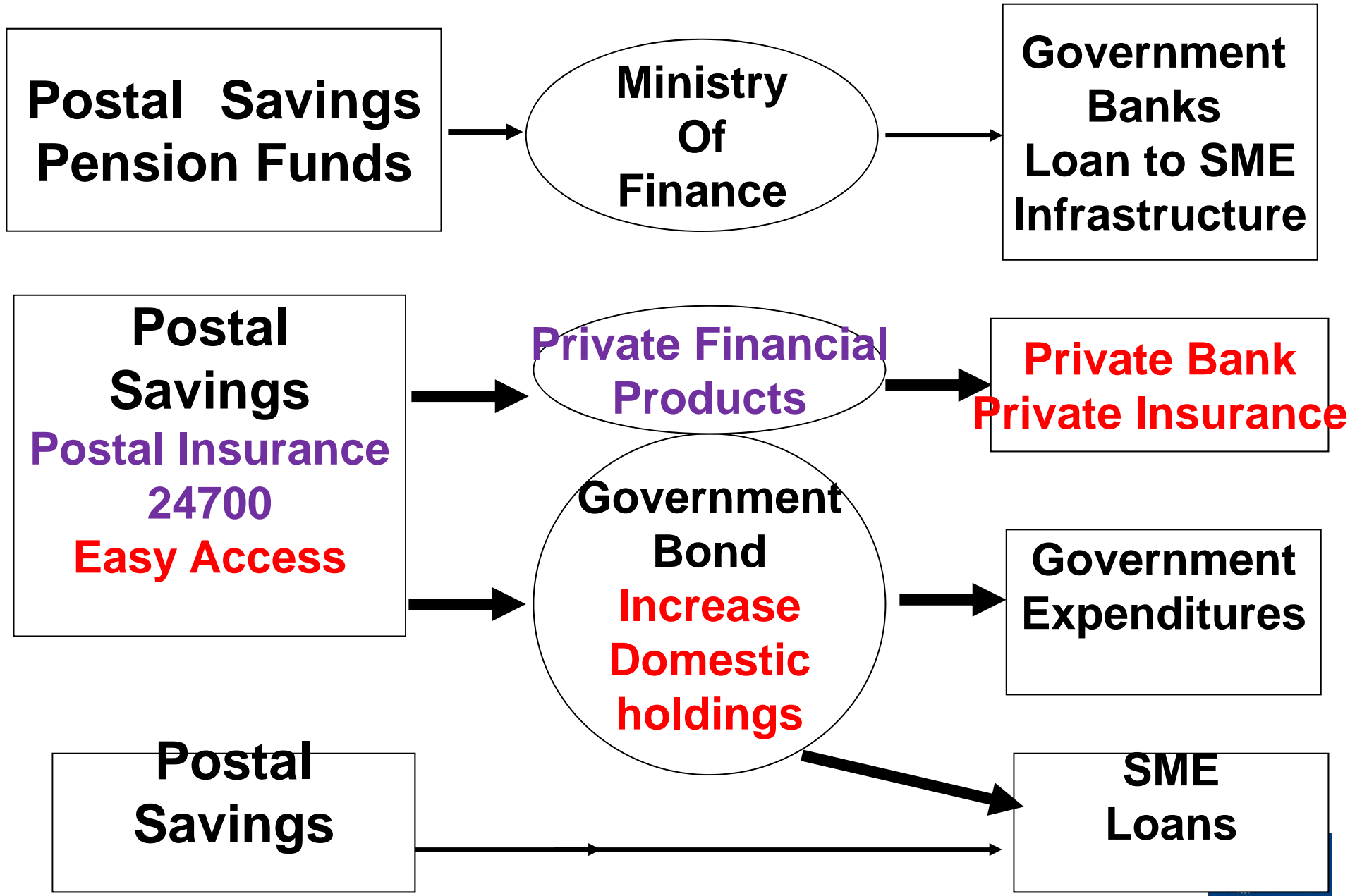


Figure 4.6 A More Diverse Investor Base in Emerging Asia (*Domestic investor base, billions of U.S. dollars*)

Characteristics of Financial Market

- 1, Bank based financial market**
- 2, Small share of institutional investors
(Insurance and Pension funds)**
 - Lack of long term investors**
- 3, 30% of population have bank accounts**
 - Access to finance is limited in certain countries**
 - Utilize post office and internet banking**
- 4, Money lenders charge very high interest rate**
- 5, Small share of mutual funds**
- 6, Lack of venture capital**

Use of Postal Savings



Increase Access to Finance by use of Post Office

- 1, Easy Access, Closeness**
- 2, Friendly,**
- 3, Affordable transaction costs**
- 4, Mobile postal service**
- 5, Deposit Insurance (same with private deposits)**
Inspection and Supervision (OJK=FSA, BI)
Capital requirement = different from Basel
- 6, Practice for post office workers to handle deposits by few post office**
- 7, Training of postal workers**

Cost Efficiency of Postal Savings

1, Scale Economy

Nationwide network of Post Office

2, Economies of Scope (German **Post Bank**)

(i) Mail Services

(ii) Postal Savings

(iii) **Post Life Insurance**

Financial inclusion of rural region

3, Reliability of Post Office Master

Post office master in Japan was respected.

4, Social Securities – Pay through post office

5, **Easy Access to Post Office (No formal close)**

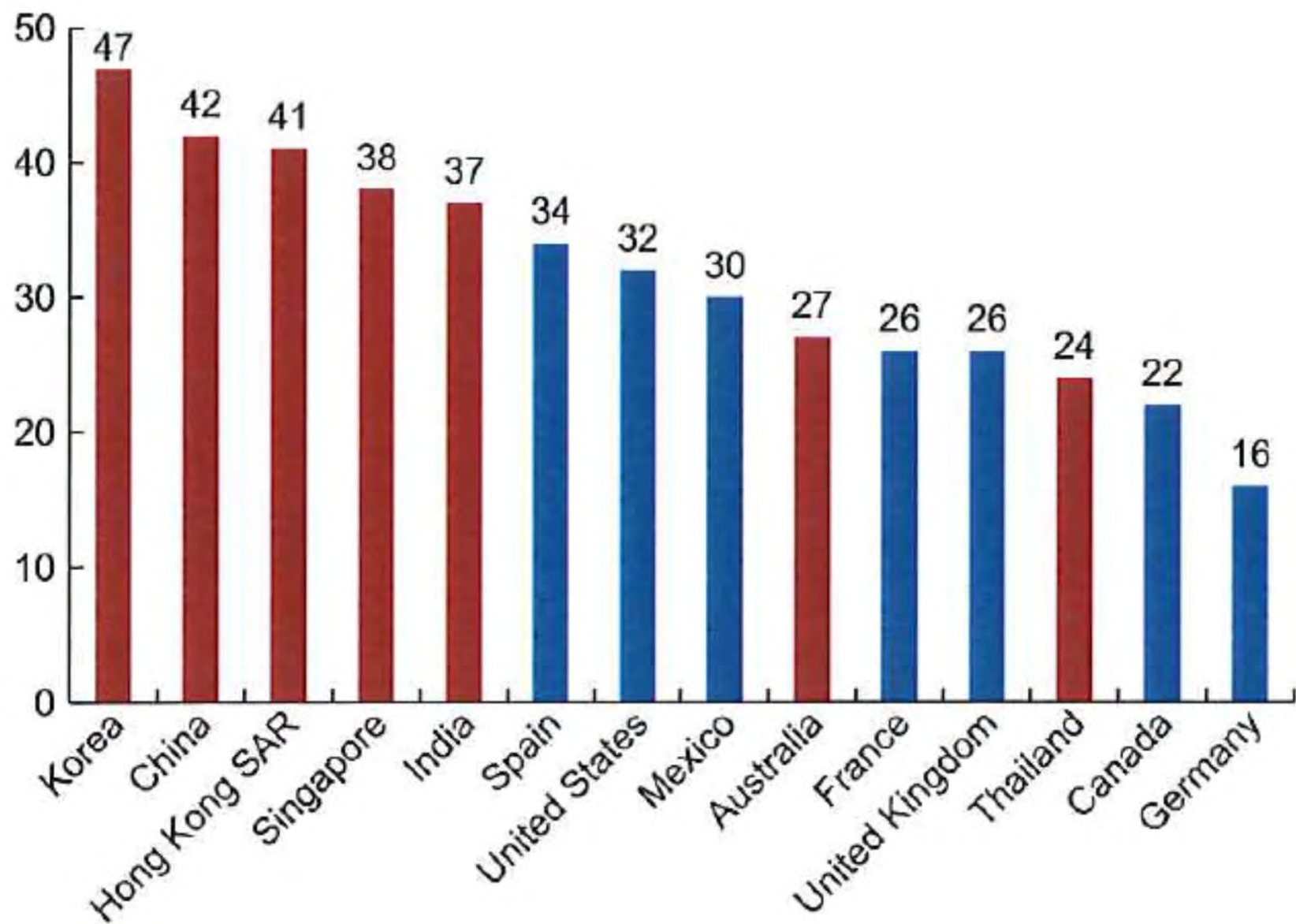


Figure 2.12 Selected Economies: Mobile Banking Penetration (*Percent of respondents reporting mobile banking transactions in the last three months, 2012*)

Financial Education in Schools (Japan)

1, Primary School Post Office Savings

Each month students put some money,

At the end of the 6th year → huge amount

2, Secondary School and High School

taught in the courses of “Civics, Home-economics”

3, Financial education in Japan’s primary school

is taught at “Home making courses”.

6, Retiree from financial institutions could teach

financial economics to students.

Video lectures

Financial Education Promotion Council

What kind of subjects and items should be taught at each level of school education ?

Chair Person, Naoyuki YOSHINO

Central Bank of Japan

Financial Services Agency (FSA)

Ministry of Education

Consumer Protection Agency (Government of Japan)

Bankers Association of Japan

Securities Dealers Association

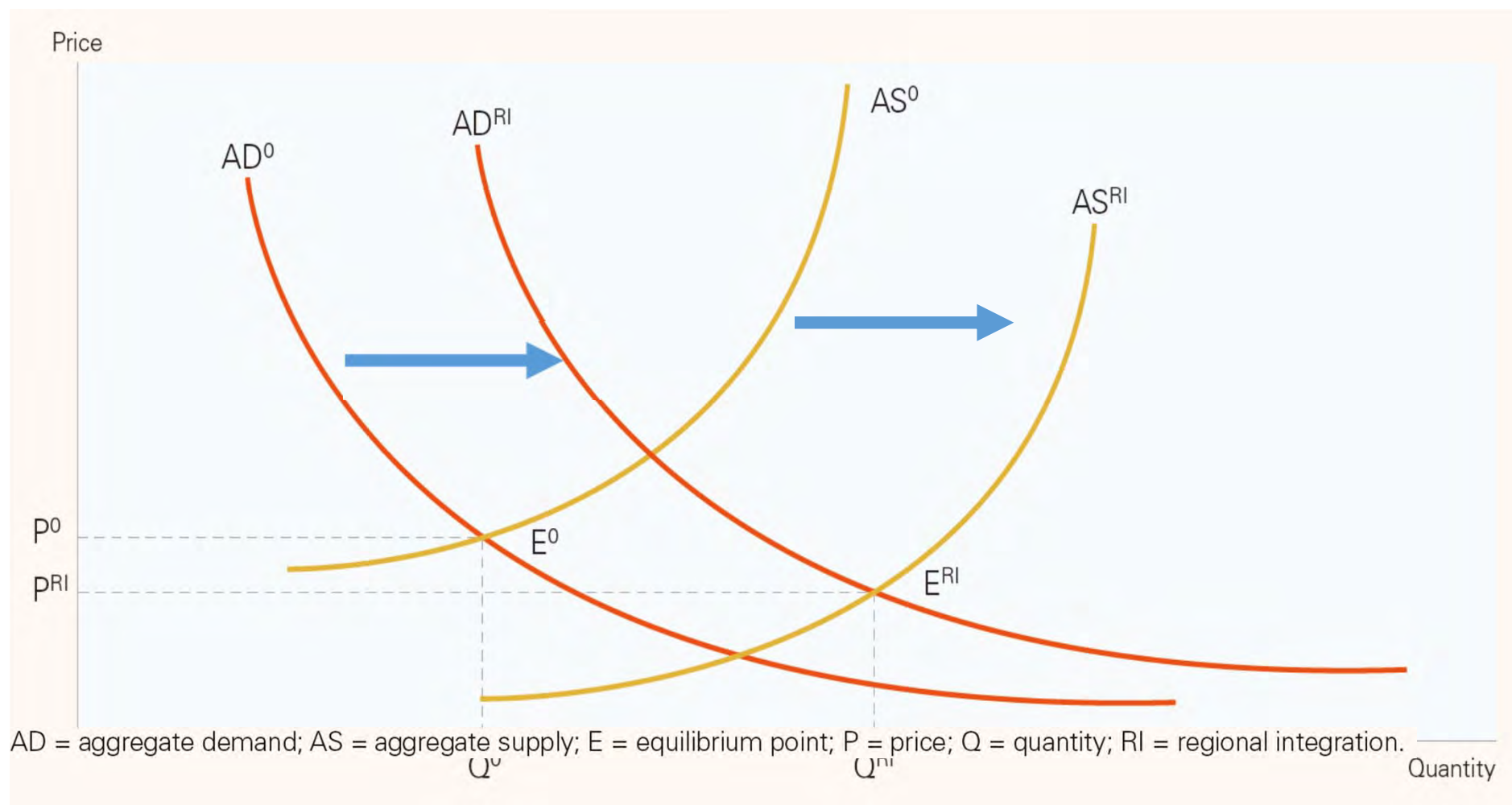
Insurance Association

Trust Bank Association

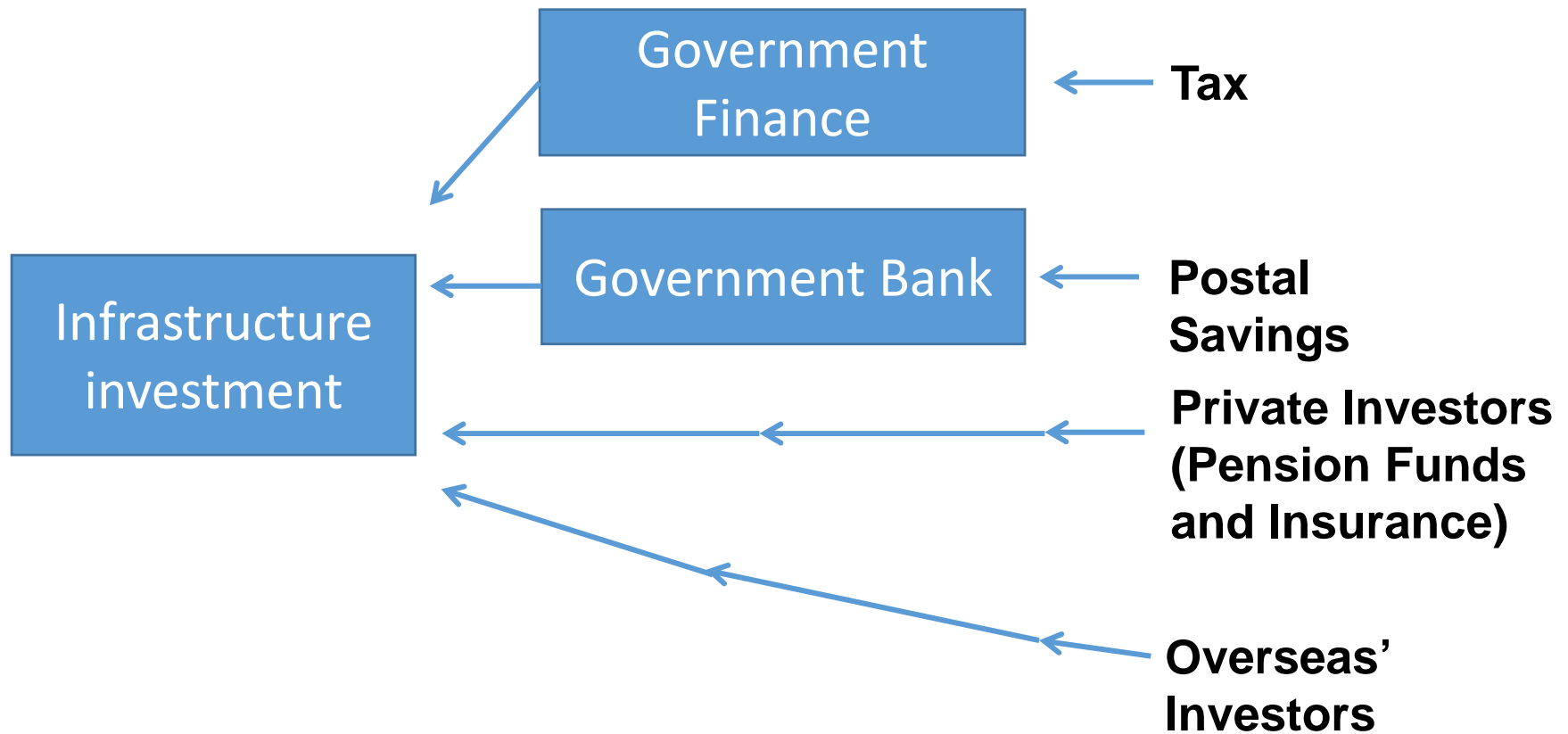
Investment Trust Association

Financial Planners Association

Effect of development of financial market <Aggregate Demand & Aggregate Supply>



Infrastructure Finance



Investors

Community Type Infrastructure

→ **Hometown Investment Trust Funds**

Wind power Generator Funds

Japanese Wine Fund

Local Airport

Agricultural Sector

Large Projects and Professional Investors

Pension Funds

Brown fields

Insurance companies

not green field

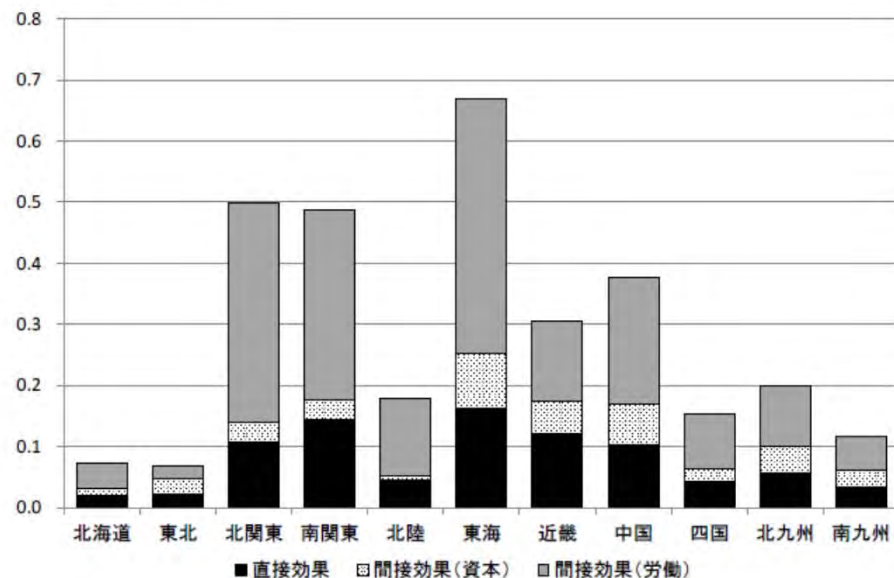
Mutual Funds

Economic Effect of Infrastructure Investment

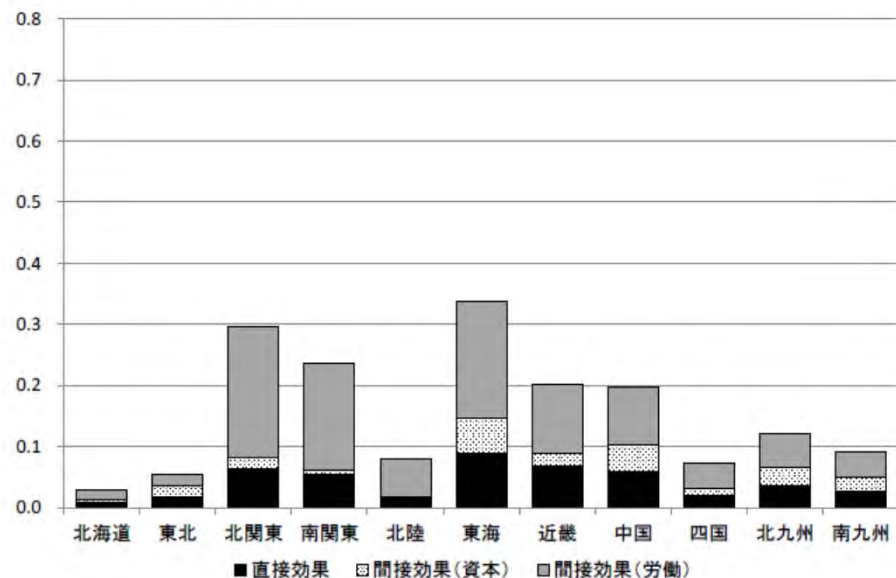
Regional Disparities (Manufacturing Industry)

図1 第2次産業における社会資本の生産力効果の変化

(1) 1990 年度



(2) 2010 年度

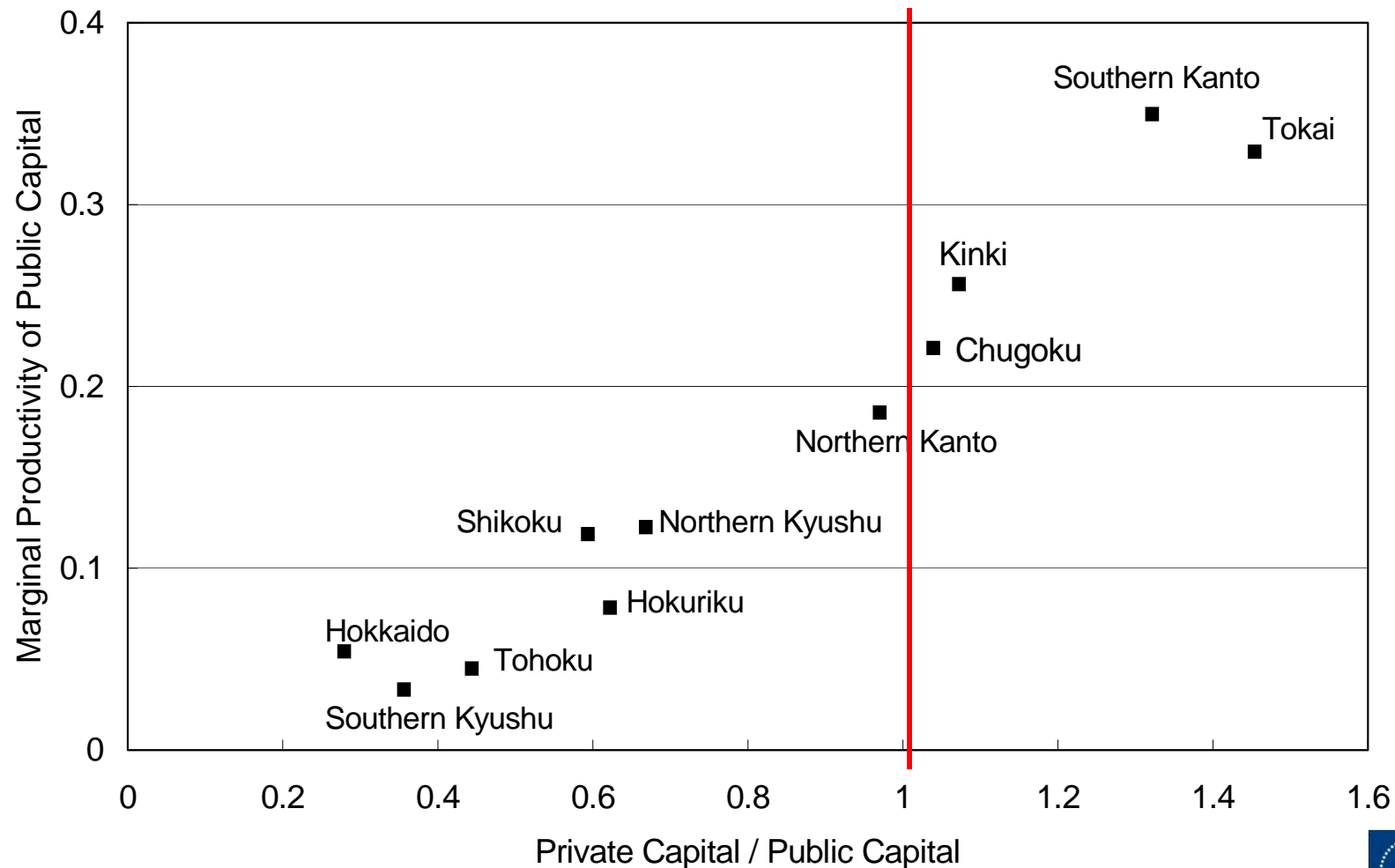


(出所) Nakahigashi-Yoshino (2015)

Effectiveness of Public Investment

- “Private capital/Public capital ratio” to “Marginal productivity of Public capital” -

Secondary Industry (Industrial Sector)



Thailand (Effectiveness of Infrastructure Investment)

		Private capital	Public capital			
				Direct effect	Indirect effect	
					Capital	Labor
Agriculture, forest, hunting and fishing						
	1971-1980	0.971	0.778	0.086	0.618	0.074
	1981-1990	0.912	0.516	0.107	0.323	0.087
	1991-2000	0.859	0.101	0.068	-0.059	0.092
	2001-2012	0.814	-0.185	0.018	-0.293	0.090
Manufacturing						
	1971-1980	0.710	0.526	0.191	0.111	0.224
	1981-1990	0.623	0.426	0.163	-0.004	0.266
	1991-2000	0.554	0.409	0.135	0.190	0.083
	2001-2012	0.631	0.902	0.173	1.081	-0.351

Case Study: Southern Tagalog Arterial Road (STAR) , Philippines

- The Southern Tagalog Arterial Road (STAR) project in Batangas province, Philippines (south of Metro Manila) is a modified Built-Operate-Transfer (BOT) project.
- The 41.9 km STAR tollway was built to improve road linkage between Metro Manila and Batangas City, provide easy access to the Batangas International Port, and thereby accelerate industrial development in Batangas and nearby provinces.

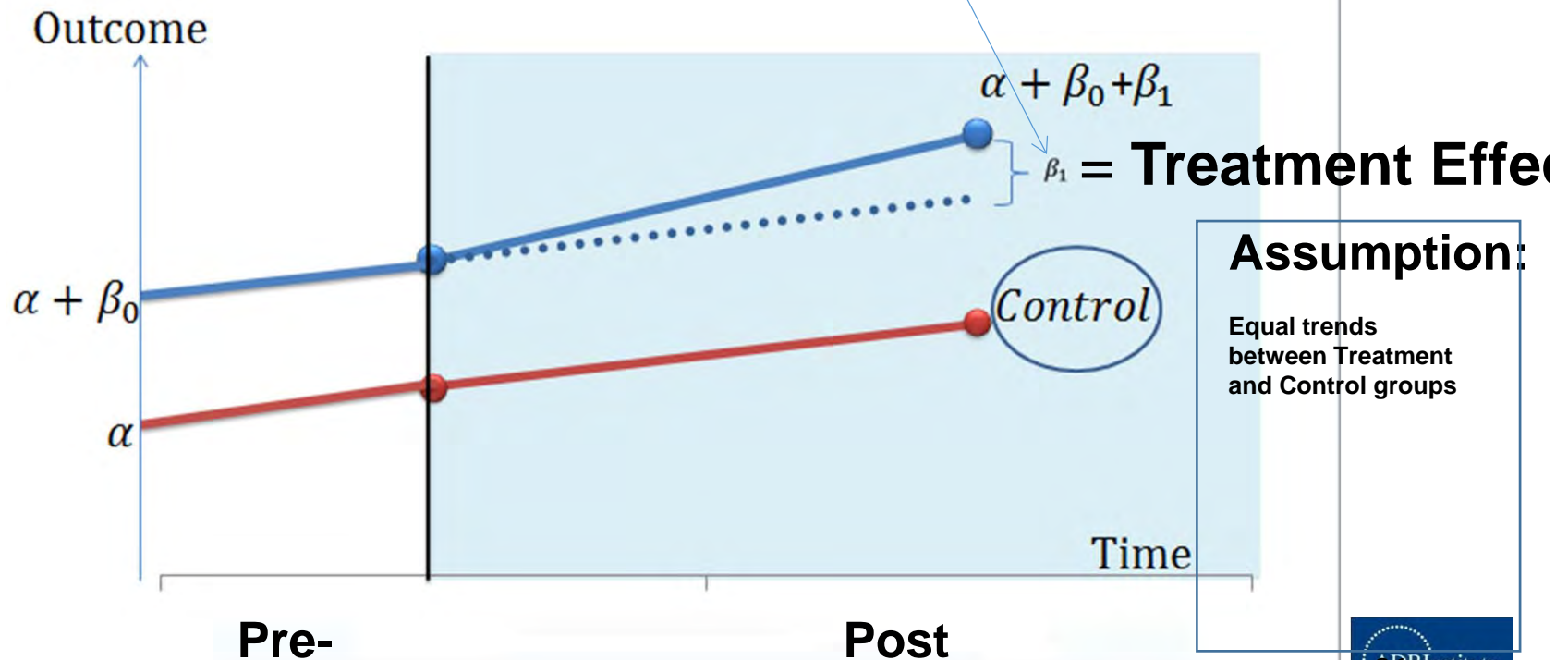


Method: Difference-in-Difference (DiD) Analysis

$$\text{Outcome} = \alpha + \beta_0 D + \sum_{t=-4}^{t+2} \beta_1 D \times T + \varepsilon$$

where: $D = 1$ (Treatment group)
 $D = 0$ (Control group)

$T = \text{Treatment period}$



Difference-in-Difference Regression: Spillover

	(1) Property tax	(2) Property tax	(3) Business tax	(4) Business tax	(5) Regulatory fees	(6) Regulatory fees	(7) User charge	(8) User charge
Treatment D	1.5535 (1.263)	0.736 (0.874)	1.067 (1.316)	0.438 (1.407)	1.372 (1.123)	0.924 (1.046)	0.990 (1.095)	0.364 (1.028)
Treatment D × Period _{t+2}	0.421** (0.150)	-0.083 (0.301)	1.189*** (0.391)	0.991** (0.450)	0.248*** (0.084)	-0.019 (0.248)	0.408*** (0.132)	-0.010 (0.250)
Treatment D × Period _{t+1}	0.447** (0.160)	0.574*** (0.118)	1.264*** (0.415)	1.502*** (0.542)	0.449** (0.142)	0.515*** (0.169)	0.317** (0.164)	0.434** (0.167)
Treatment D × Period _{t0}	0.497*** (0.128)	0.570** (0.223)	1.440*** (0.417)	1.641*** (0.482)	0.604** (0.183)	0.642*** (0.181)	0.350 (0.271)	0.422 (0.158)
Treatment D × Period _{t-1}	1.294** (0.674)	0.387 (0.728)	2.256** (0.957)	1.779** (0.470)	1.318** (0.649)	0.838* (0.448)	0.959 (0.714)	0.197 (0.560)
Treatment D × Period _{t-2}	1.163* (0.645)	0.336 (0.594)	2.226** (0.971)	1.804** (0.531)	1.482** (0.634)	1.044** (0.413)	0.941 (0.704)	0.247 (0.531)
Treatment D × Period _{t-3}	1.702* (0.980)	0.450 (0.578)	2.785** (1.081)	2.070*** (0.544)	1.901*** (0.630)	1.238*** (0.369)	1.732*** (0.598)	0.676 (0.515)
Treatment D × Period _{t-4} , forward	2.573*** (0.900)	1.100 (0.758)	3.428*** (0.928)	2.560*** (0.350)	2.288*** (0.563)	1.509*** (0.452)	2.030*** (0.607)	0.787 (0.745)
Construction		2.283** (1.172)		1.577 (1.196)		1.207 (0.855)		1.942* (1.028)
Constant	14.69*** (0.408)	-2.499 (8.839)	14.18*** (0.991)	2.230 (9.094)	13.66*** (0.879)	4.597 (6.566)	13.08*** (0.649)	-1.612 (7.84)
N	80	73	79	73	80	73	77	73
R ²	0.29	0.41	0.37	0.44	0.43	0.50	0.26	0.39

Clustered standard errors, corrected for small number of clusters; * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

The Southern Tagalog Arterial Road (STAR)

1. Philippines, Manila

表 8 フィリピンの STAR 高速道路の影響のない地域と比較した事業税の増加額

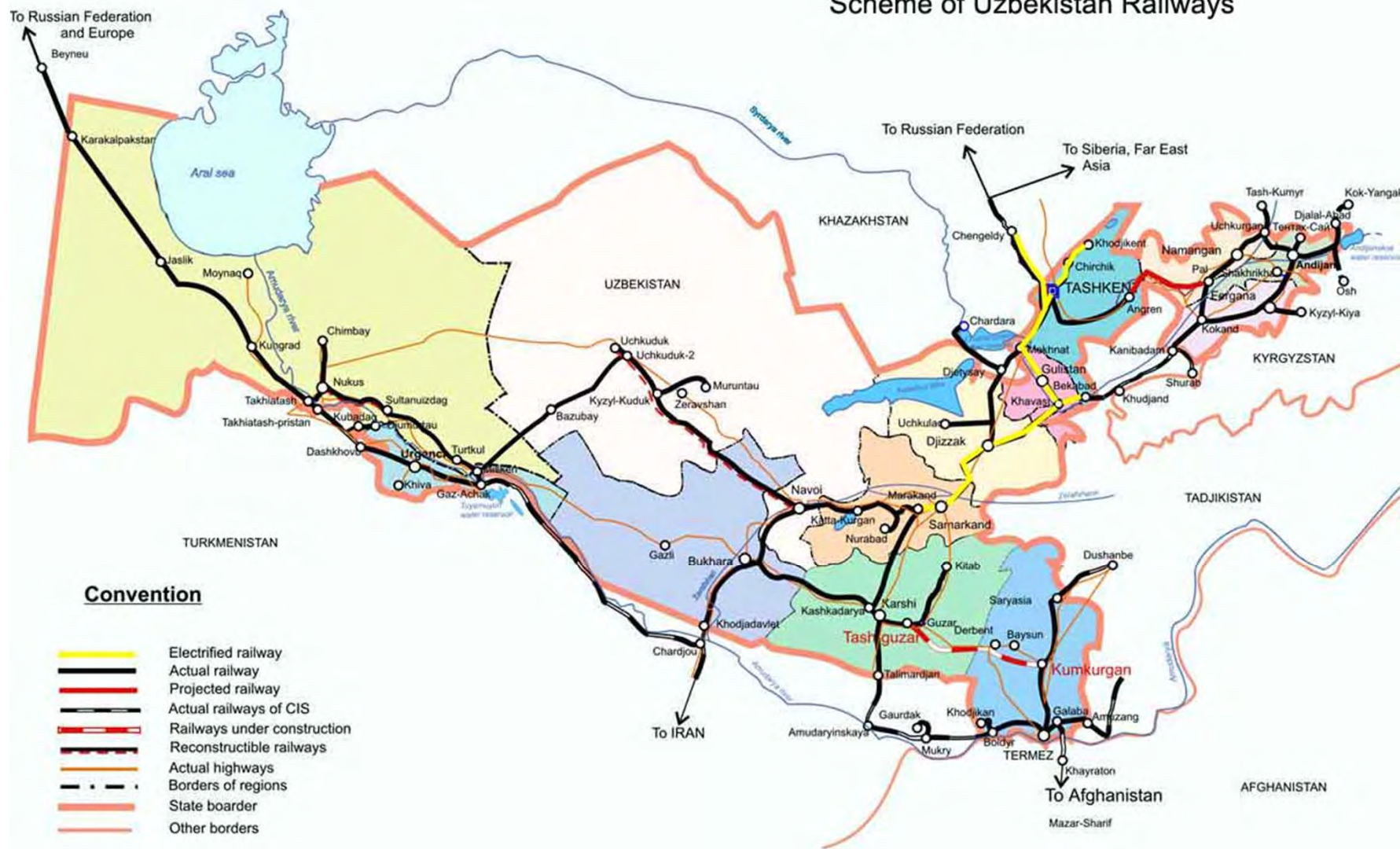
(単位：100 万ペソ)

	t_{-2}	t_{-1}	t_0	t_{+1}	t_{+2}	t_{+3}	t_{+4} 以降
Lipa 市	134.36	173.50	249.70	184.47	191.81	257.35	371.93
Ibaan 市	5.84	7.04	7.97	6.80	5.46	10.05	12.94
Batangas 市	490.90	622.65	652.83	637.89	599.49	742.28	1208.61

(出所) Yoshino and Pontines (2015)より筆者作成

Uzbekistan: Railway

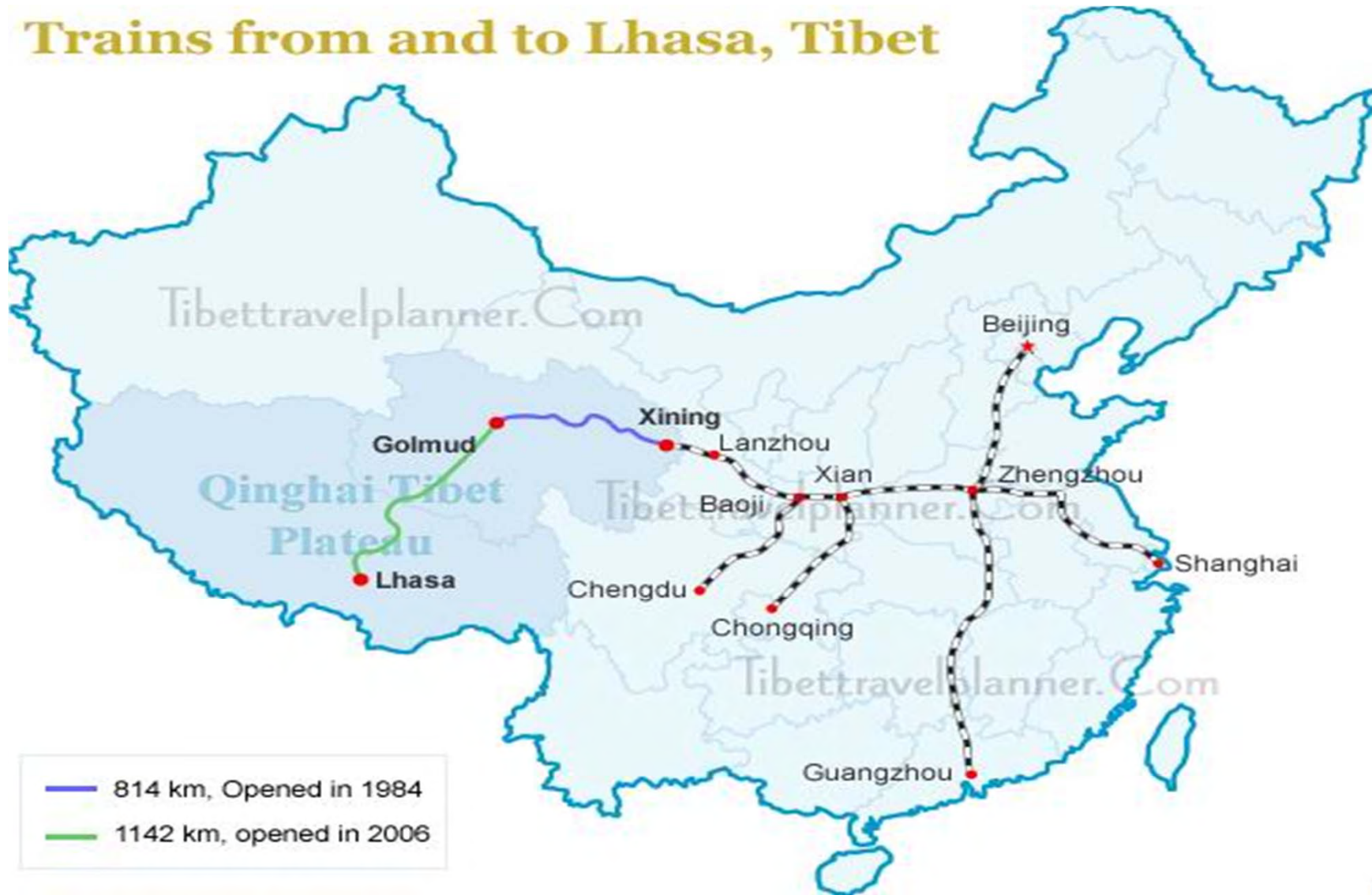
Scheme of Uzbekistan Railways



Regions	Out come	Pre- railway period	Post- railway period	Diffe rence
Non- affected group	GDP growth rate	8.3	8.5	0.2
Affected Group	GDP growth rate	7.2	9.4	2.2

Qinghai-Tibet Railway Map

Trains from and to Lhasa, Tibet



Tibet Railway



@中国铁路

<http://weibo.com/chineserailways>

Source	SS	df	MS	Number of obs = 72		
Model	8.28173613	6	1.38028935	F(6, 65) = 7.73		
Residual	11.6075298	65	.178577382	Prob > F = 0.0000		
Total	19.8892659	71	.280130506	R-squared = 0.4164		
				Adj R-squared = 0.3625		
				Root MSE = .42258		

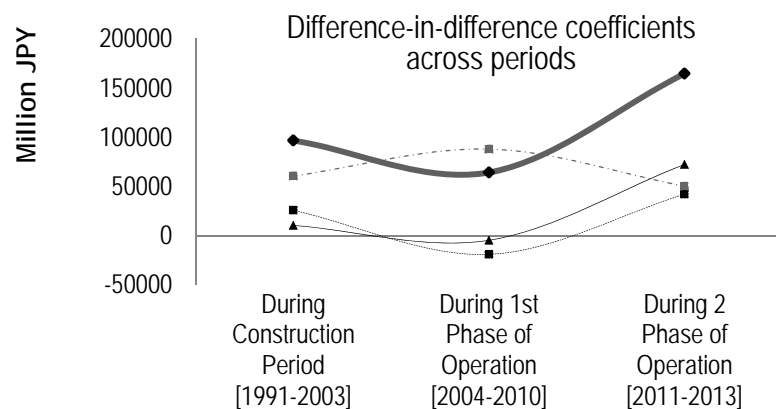
difference1	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
govspending1	.0118414	.0028554	4.15	0.000	.0061389	.017544
population1	.0034233	.0013616	2.51	0.014	.000704	.0061426
population0	-.0102002	.0037957	-2.69	0.009	-.0177808	-.0026196
govspending0	-.0206841	.0055783	-3.71	0.000	-.0318248	-.0095435
Dummy	.0924005	.2097625	0.44	0.661	-.3265242	.5113252
Dummy2	.061252	.1937049	0.32	0.753	-.3256034	.4481074
_cons	.4984291	.2045091	2.44	0.018	.0899961	.906862

Japanese Bullet Train

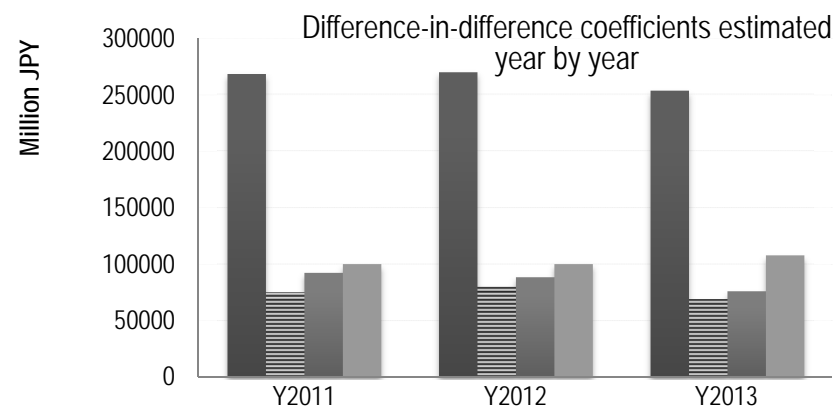


Japanese Bullet Train

Estimation results by group of prefectures



◆ Total Tax	96603	64067	164541
■ Personal Income Tax	25723	-19033	42035
▲ Corporate Tax	10350	-4772	72330
■ Other Taxes	60529	87872	50176



■ Total Tax	268644	270262	253343
▨ Personal Income Tax	75582	80472	69234
■ Corporate Tax	92720	89082	76302
■ Other Taxes	100341	100707	107805

Note: Numbers for tax revenue amount adjusted for CPI with base year 1982. Pre-shinkansen construction period covers years from 1982 to 1990. Non-affected groups include rest of the prefectures

Treated groups: Group 2: Kagoshima, Kumamoto

Group 3: Kagoshima, Kumamoto, Fukuoka

Group 5: Kagoshima, Kumamoto, Fukuoka, Oita, Miyazaki

Group 7: Kagoshima, Kumamoto, Fukuoka, Oita, Miyazaki, Saga, Nagasaki

Group Con.: Kagoshima, Kumamoto, Fukuoka, Yamaguchi, Hiroshima, Okayama, Hyogo, Osaka

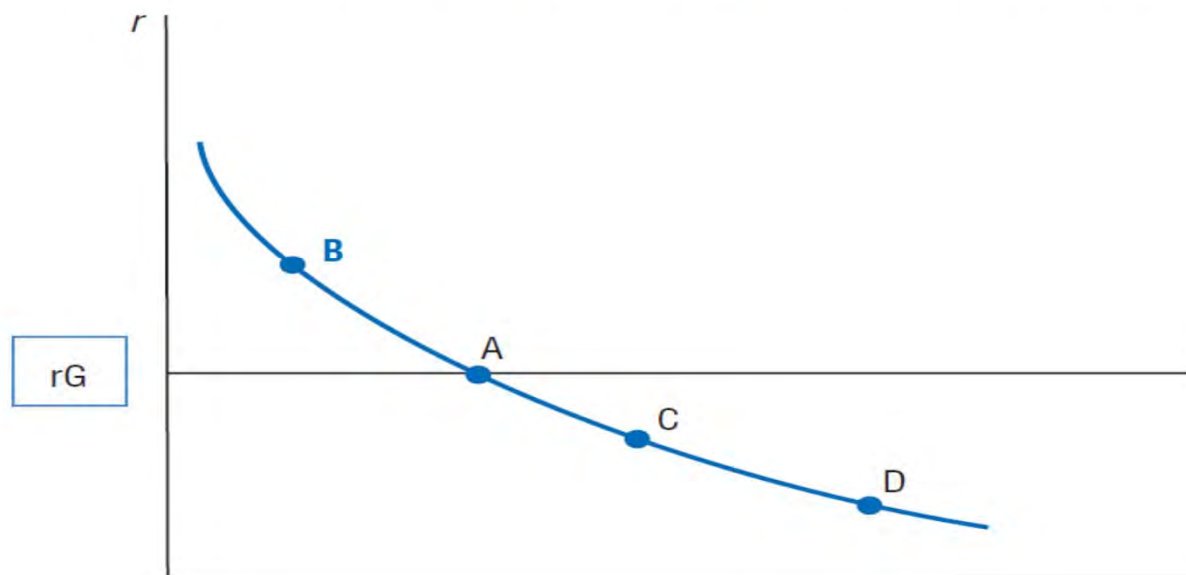
Impact of Kyushu Shinkansen Rail on
CORPORATE TAX revenue during 2nd PHASE OF OPERATION period
{2011-2013} , mln. JPY (adjusted for CPI, base 1982)

1	1	1	1	1	1	1	1	1	1	1	1	19	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	9	9	9	9	9	9	9	9	9	9	9	94	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	8	8	8	8	8	8	8	9	9	9		9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	
2	3	4	5	6	7	8	9	0	1	2	3		5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	3	

						COMPOSITION OF GROUPS	
Variable	Regression 1	Regression 2	Regression 3	Regression 4	Regression 5	Group2	Group5
Treatment2	72330.012** [2.2]					Kagoshima Kumamoto	Kagoshima Kumamoto
Number of tax payers	5.5277056*** [3.13]	5.5585431*** [3.14]	5.558603*** [3.14]	5.5706545*** [3.14]	5.9640287*** [3.07]	Group3 Kagoshima Kumamoto Fukuoka	Fukuoka Oita Miyazaki
Treatment3		104664.34* [2]					
Treatment5			82729.673** [2.1]				
Treatment7				80998.365** [2.34]			GroupCon Kagoshima
TreatmentCon					179632 [1.58]	Group7 Kagoshima Kumamoto Fukuoka Oita	Kagoshima Kumamoto Fukuoka Osaka Hyogo
Constant	-568133.98** [-2.07]	-573747.28** [-2.08]	-574245.87** [-2.08]	-576867.56** [-2.09]	-642138.87** [-2.1]	Miyazaki	Okayama
N	611	611	611	611	611	Saga	Hiroshima
R2	0.350653	0.352058	0.352144	0.352874	0.364088	Nagasaki	Yamaguchi
F	5.062509	5.486197	5.351791	5.431088	16.55518		

Note: Treatment2 = Time Dummy {1991-2003} x Group2. etc. t-values are in parenthesis. Legend: * p<.1; ** p<.05; *** p<.01. Clustering standard errors are used, allowing for heteroscedasticity and arbitrary autocorrelation within a prefecture, but treating the errors as uncorrelated across prefectures

Expected rates of return on project bonds vs. benchmark yield



	No Efforts		Efforts to improve	
No Efforts	(50, r) Operating Company	Investors	(50, αr) Operating Company	Investors
Efforts to improve	(100, r) Operating Company	Investors	(100, αr) Operating Company	Investors

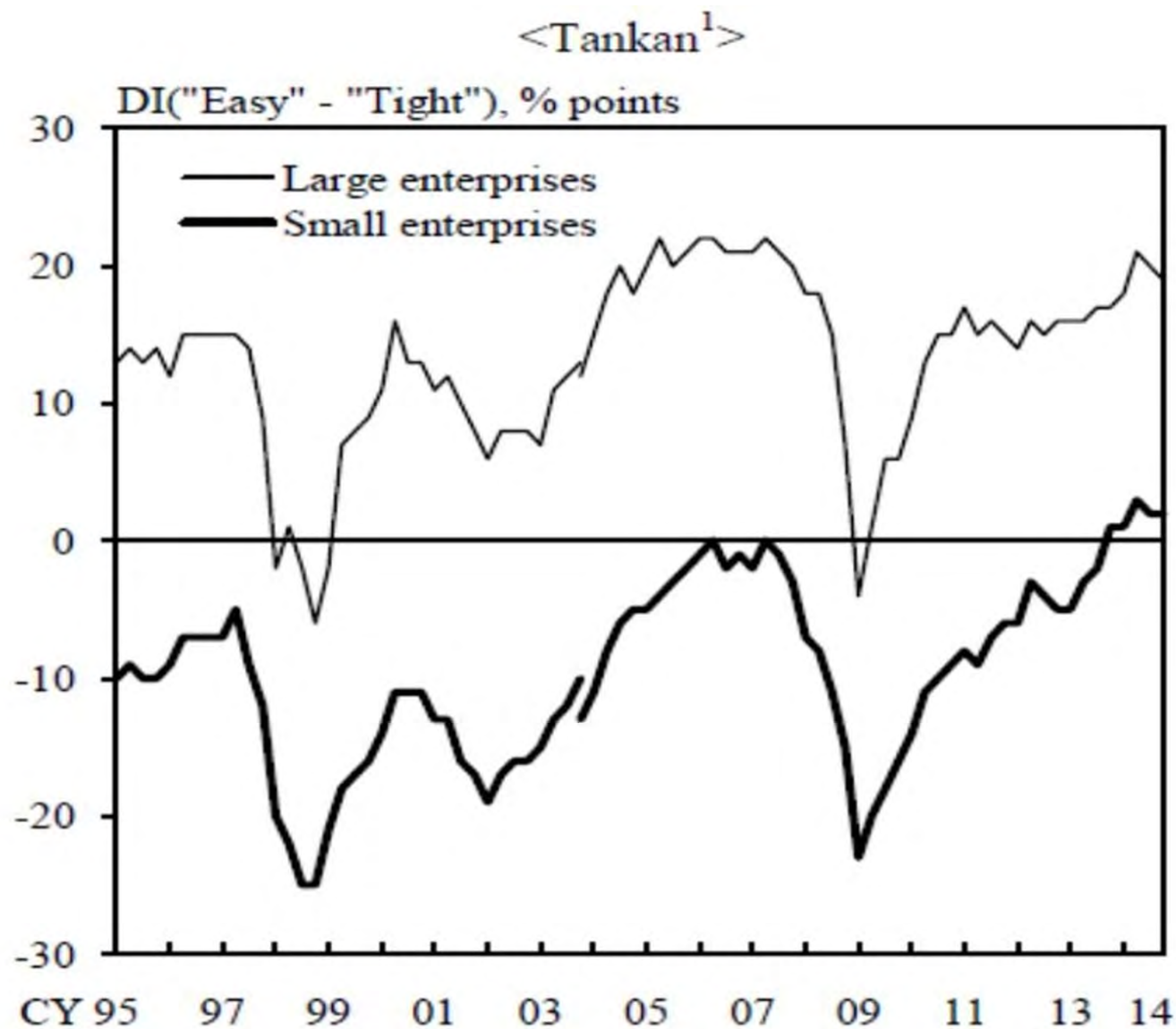
Public Private Partnership (PPP)

- (1) **Risk sharing** between private and public sector
- (2) Incentive cut costs and to increase revenue
 - Avoid political intervention
 - **Bonus payment for employees who run infrastructure**
- (3) Many projects could be started by PPP
 - **Utilize domestic savings**
 - life insurance and Pension funds (**long term**)
- (4) **Indirect Effects are important (tourism, manufacturing, agriculture, services)**

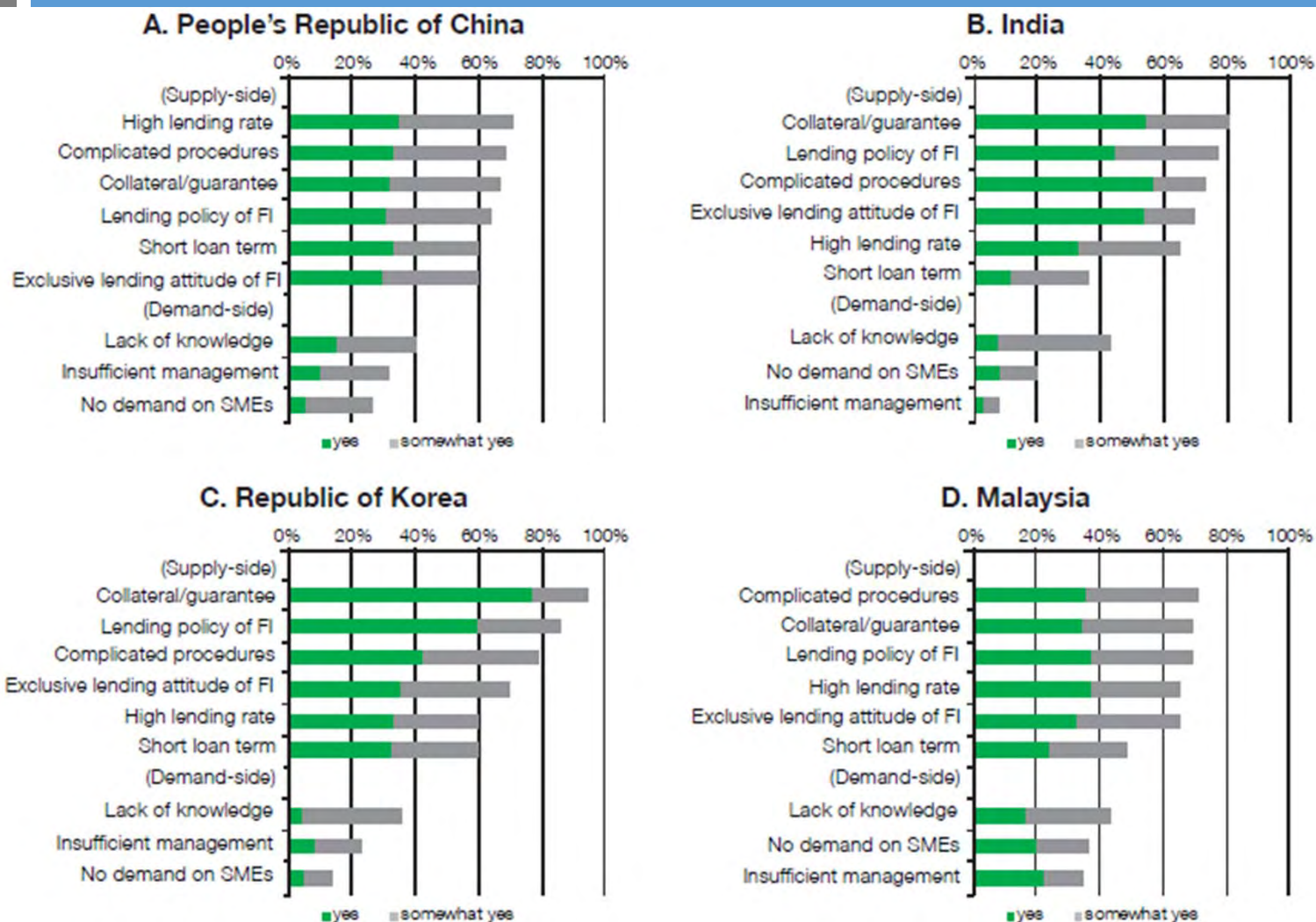
Risks Associated with Infrastructure

- 1、Risk sharing between private and public
Various Risks (political risk, operational risk, demand risk, ex-post risk, maintenance risk, earthquakes, natural disaster risk)
- 2、too much reliance on overseas' money
 - future burden for the country
 - Increase domestic savings
- 3, bankable projects or not ?
- 4, very long term investment

Access to Finance by **SMEs** and Large Firms in Japan



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

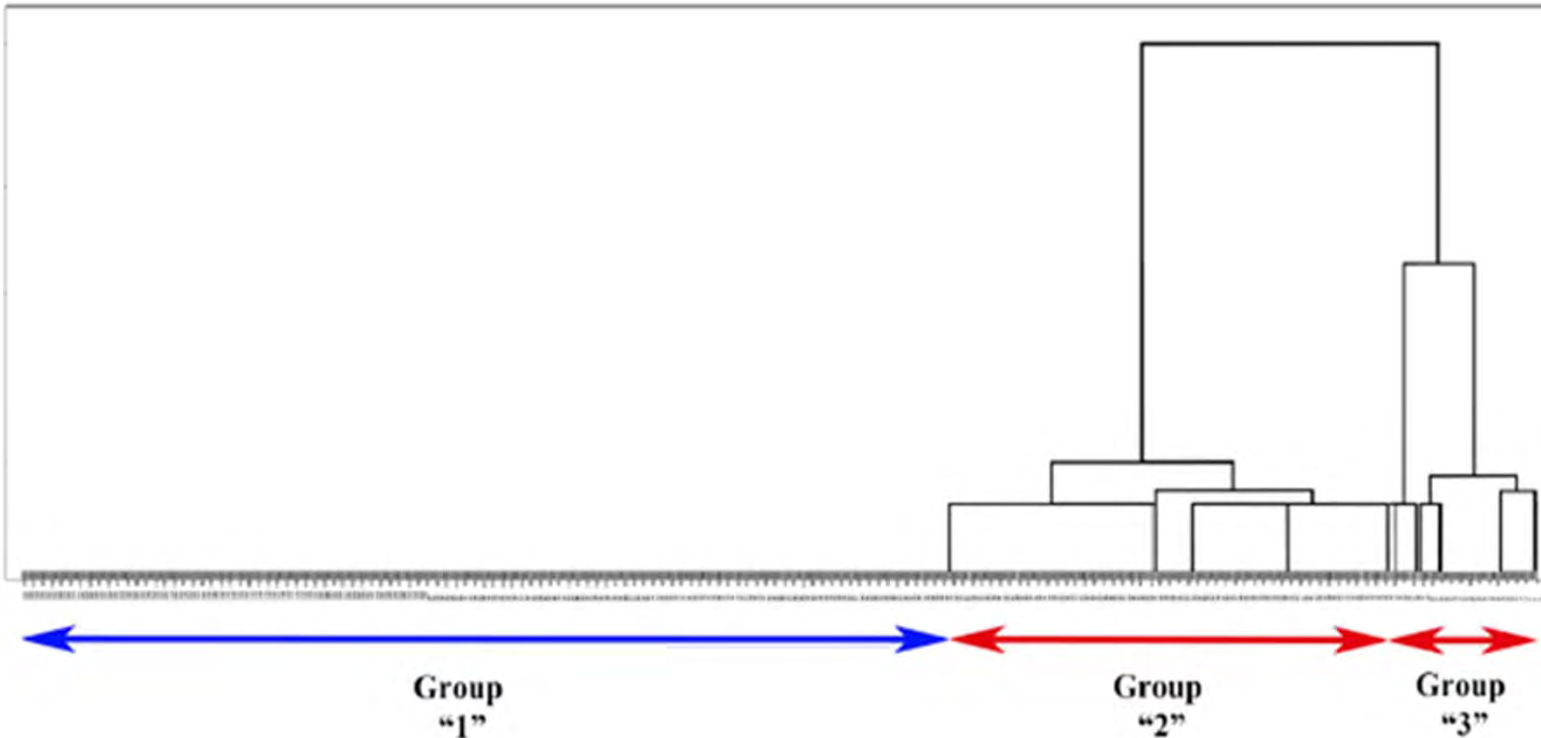
Examined Variable

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	Profitability
6	EBIT_Sales	Ebit/sales	
7	Rinc_Tassets	Retained earnings/total assets	
8	Ninc_Sales	Net income/sales	Coverage
9	EBIT_IE	Ebit/interest expenses	
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	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.

Credit Rating of SMEs using Asian Data

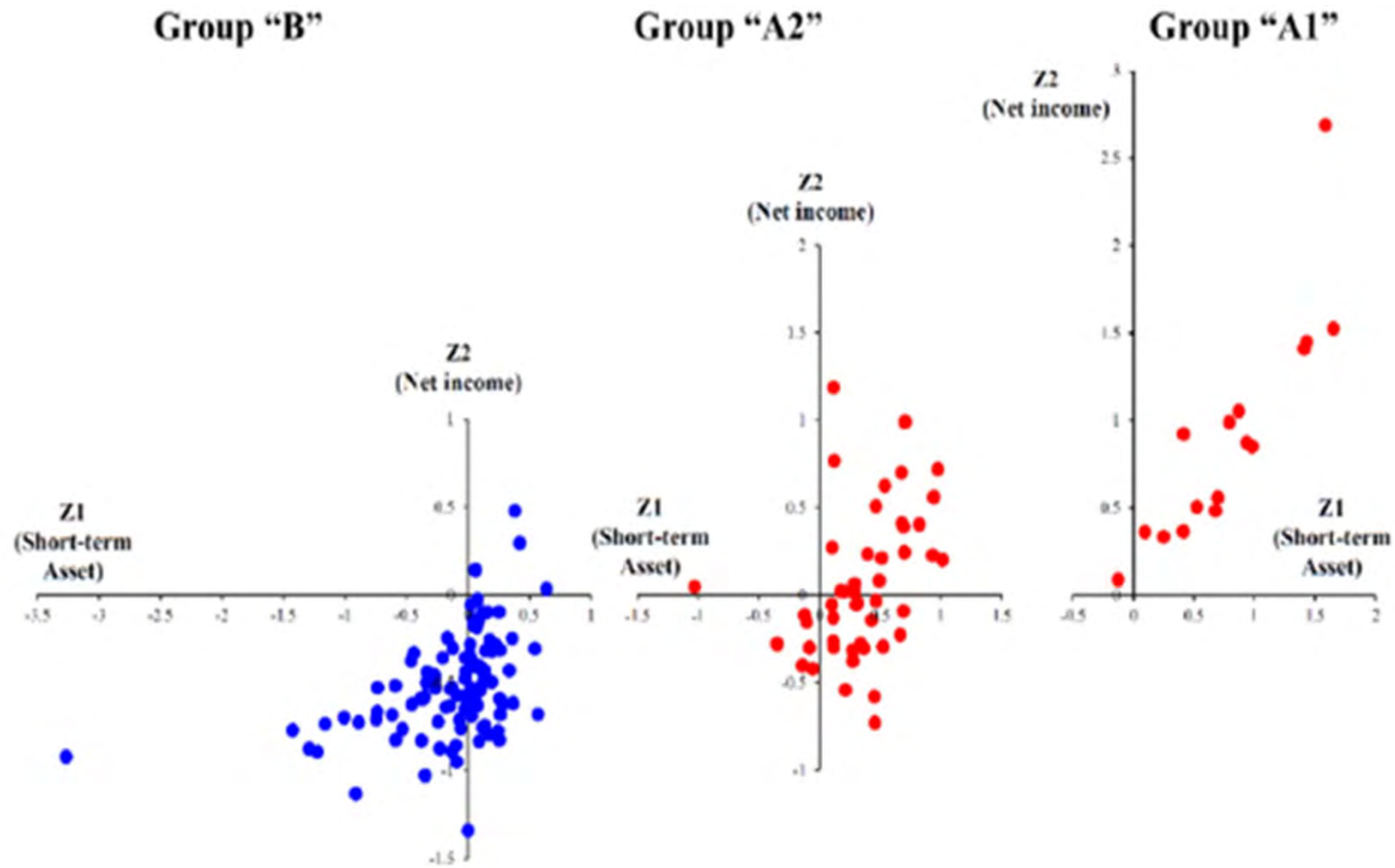
(i) Sales

(ii) Assets

(iii) Liquidity (Cash)

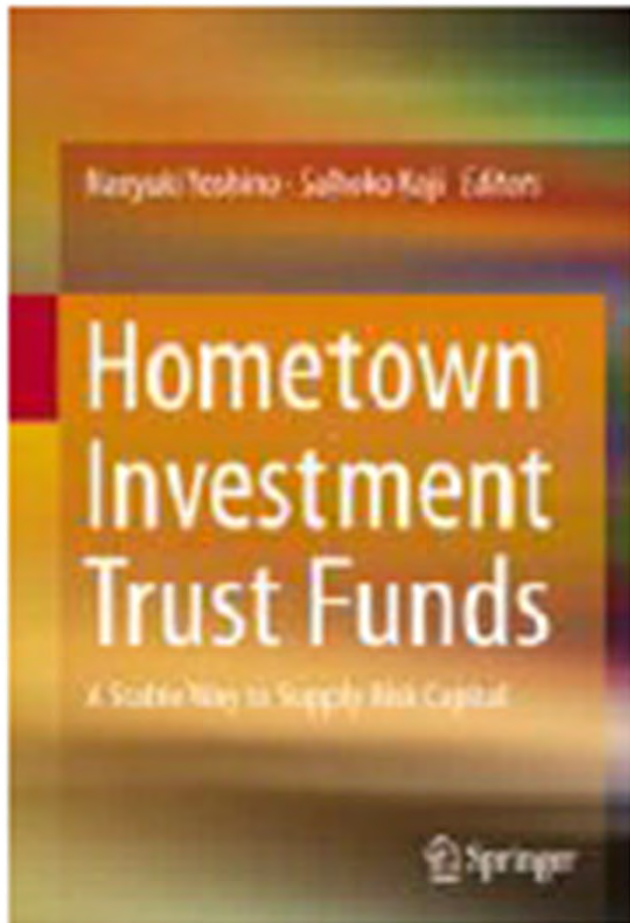
(iv) Total Debt

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



Possible Solutions

Start up businesses, farmers



Hometown Investment Trust Funds

-

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

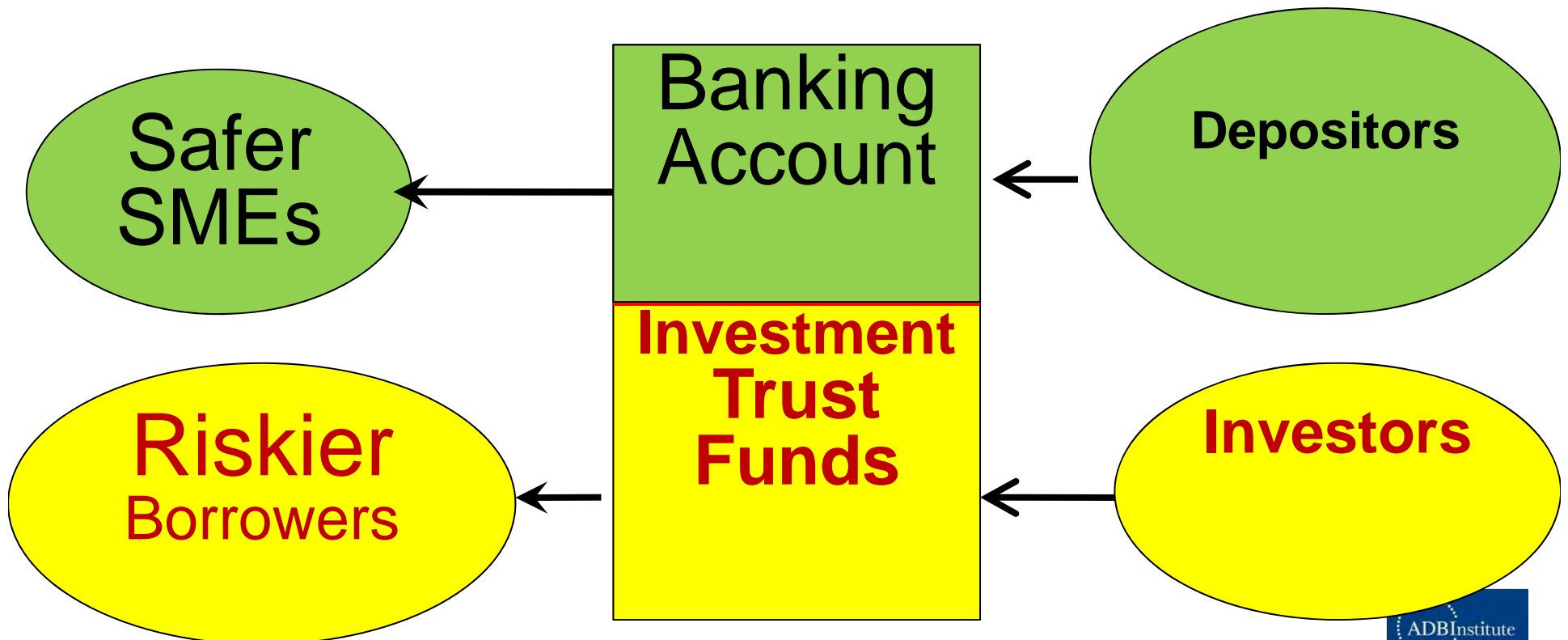
Springer

Japan, Cambodia
Vietnam, Peru

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



Investment in SMEs and start up businesses



-Financial Access for All-



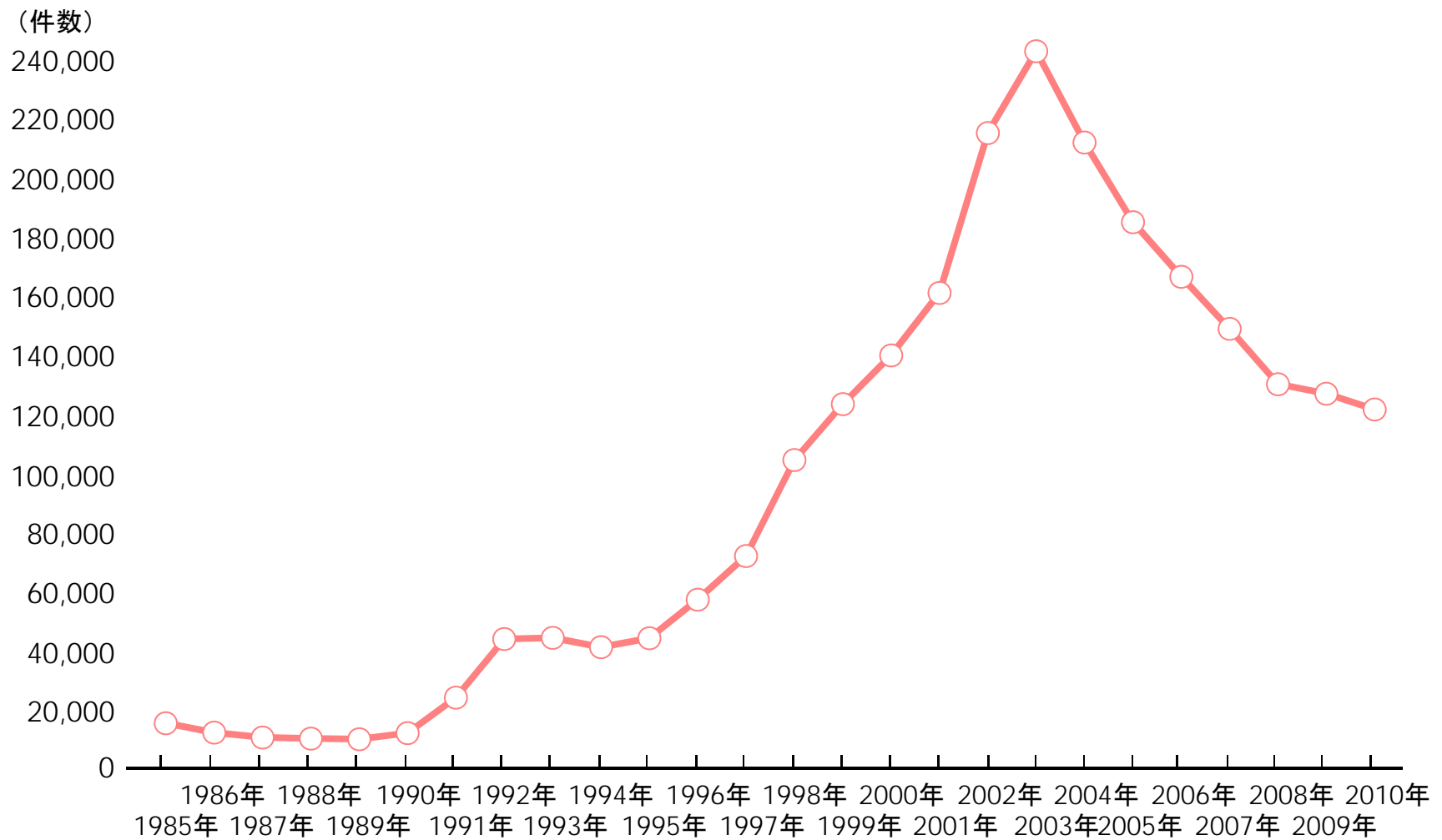
すべてを失い再起を断念しようになった時の

Agricultural Funds

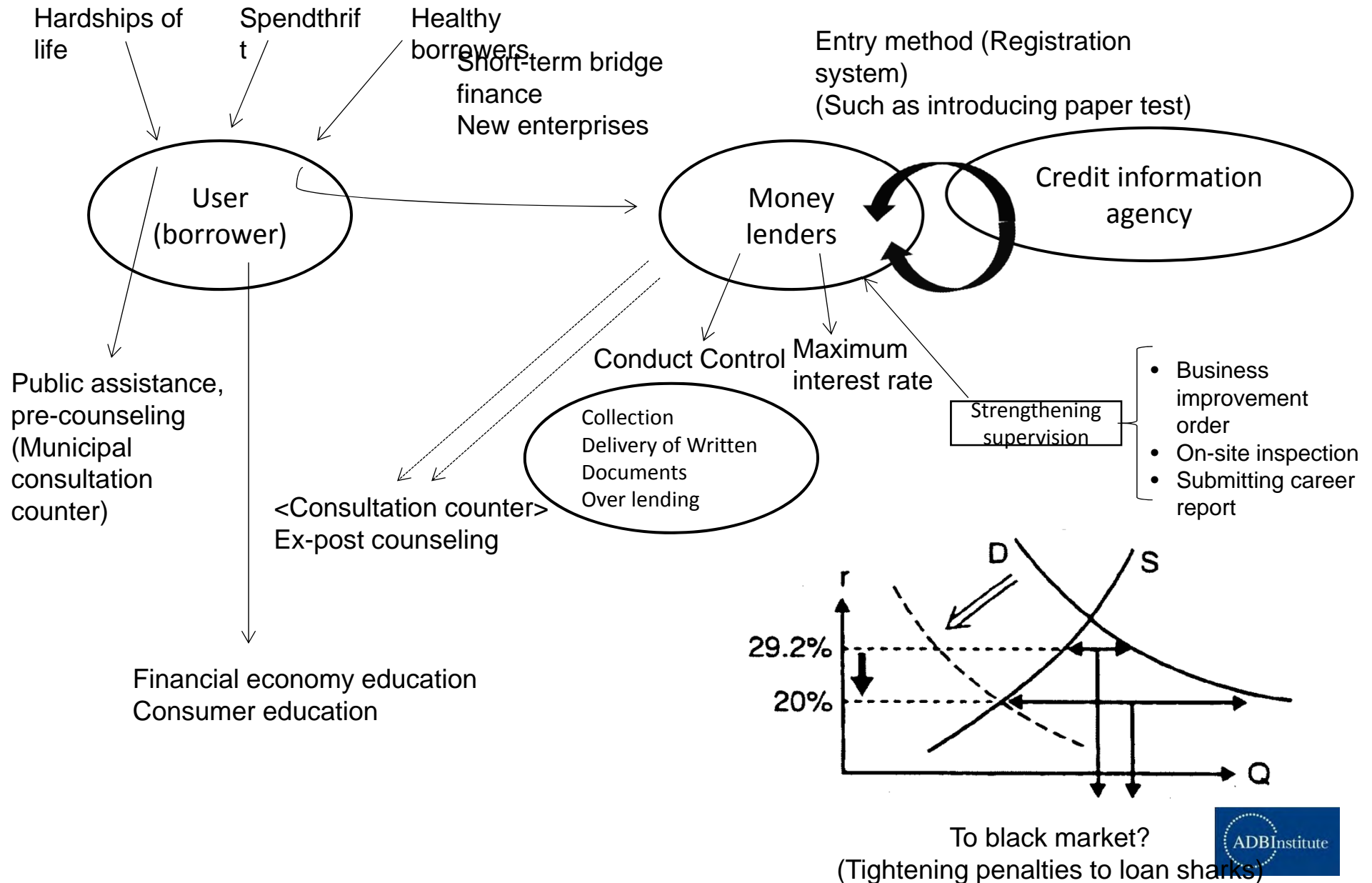
Beans and Wine



Number of Households' Default in Japan



Full picture of Users, money lenders and market, surrounding the consumer credit



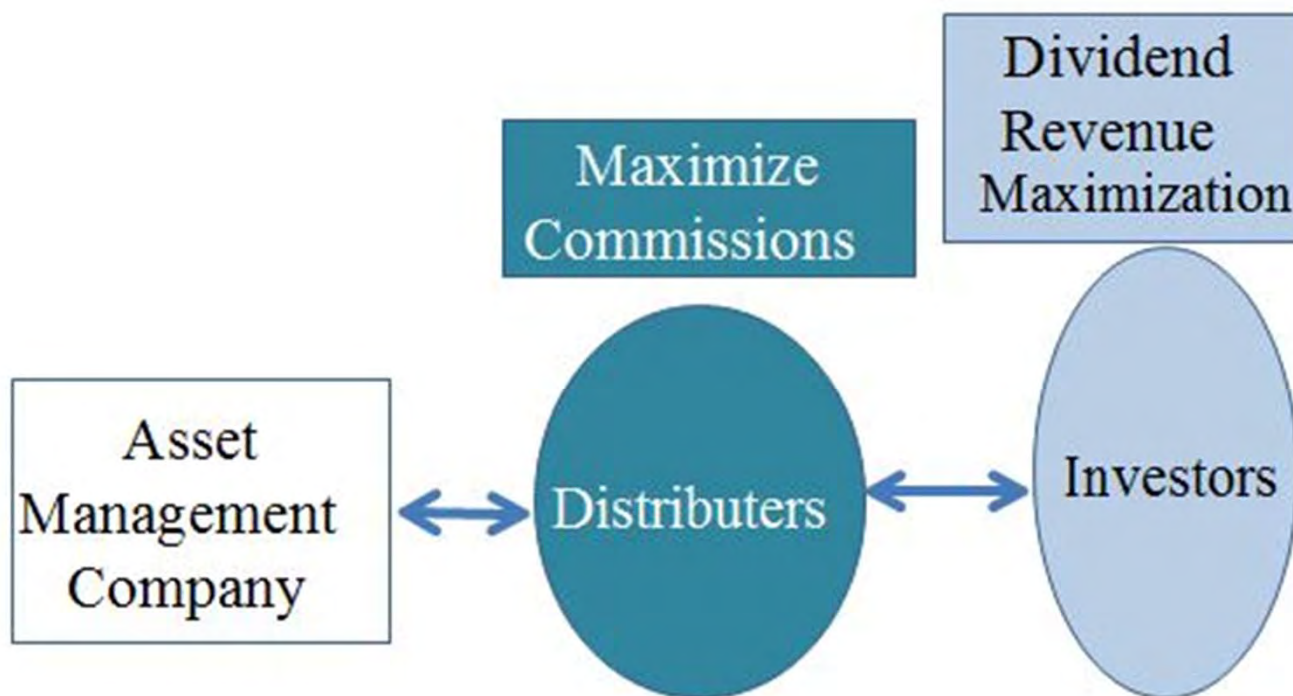
New Law – Microcredit Regulation hotline from Consumers (FSA)

- 1, Total Amount of Borrowing < 1/3 of Income**
- 2, Ceiling Interest Rate = 20%**
more than 96% → 29% → 20%
- 3, Borrowers Information**
Aggregated total individual borrowings
- 4, Paper examination to be a money lender**
- 5, Minimum capital requirement**
- 6, Set up of Self regulatory organization**
- 7, Consumer hotline**
(FSA, Money lenders association)

Commissions and Fees of Distributors

Necessity for Review of Asset Management Fees

Sales of Financial Products



Source: Yoshino (2013)

Longer term Investment achieves higher rate of return

A0=100

	Gross return on investment		Net return of investors		Sales Charges		Trust Remunerati ons
--	----------------------------------	--	-------------------------------	--	------------------	--	----------------------------

No transaction
during the
period

R	=	π	+	τ	+	ϵ
28.87		10.70		2.45		15.72

Switching funds
every 2.9 years

R	=	π	+	τ	+	ϵ
28.19		3.29		9.86		15.04

Switching funds
every 2.5 years

R	=	π	+	τ	+	ϵ
28.19		1.33		11.82		15.04

Switching funds
every 2.0 years

R	=	π	+	τ	+	ϵ
27.8		-0.26		13.41		14.65

Period 2000.1
2013.12

Purpose of holding mutual funds (Survey 2014)

USA	(i) 91%	Retirement
	(ii) 49%	Reduce taxable income
	(iii) 49%	Emergency
Japan	(i) 36.7%	No specific reason, Recommended by retailers
	(ii) 30.4%	Prepare for after retirement
	(iii) 17.7%	Asset Diversification

Period of holding mutual funds

(Survey USA2004, JPN2014)

USA	42%	Longer than 10years
	27%	6 to 10 years
	27%	1 to 5 years
Japan	40.7%	No specific period
	21.0%	3 years– 5 years
	14.8%	2 years– 3 years

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