2015 JAUIP
Summer IP Seminar

IPAJ Session: Innovation Performance & Intellectual Property Management of Japanese companies

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Today's talk

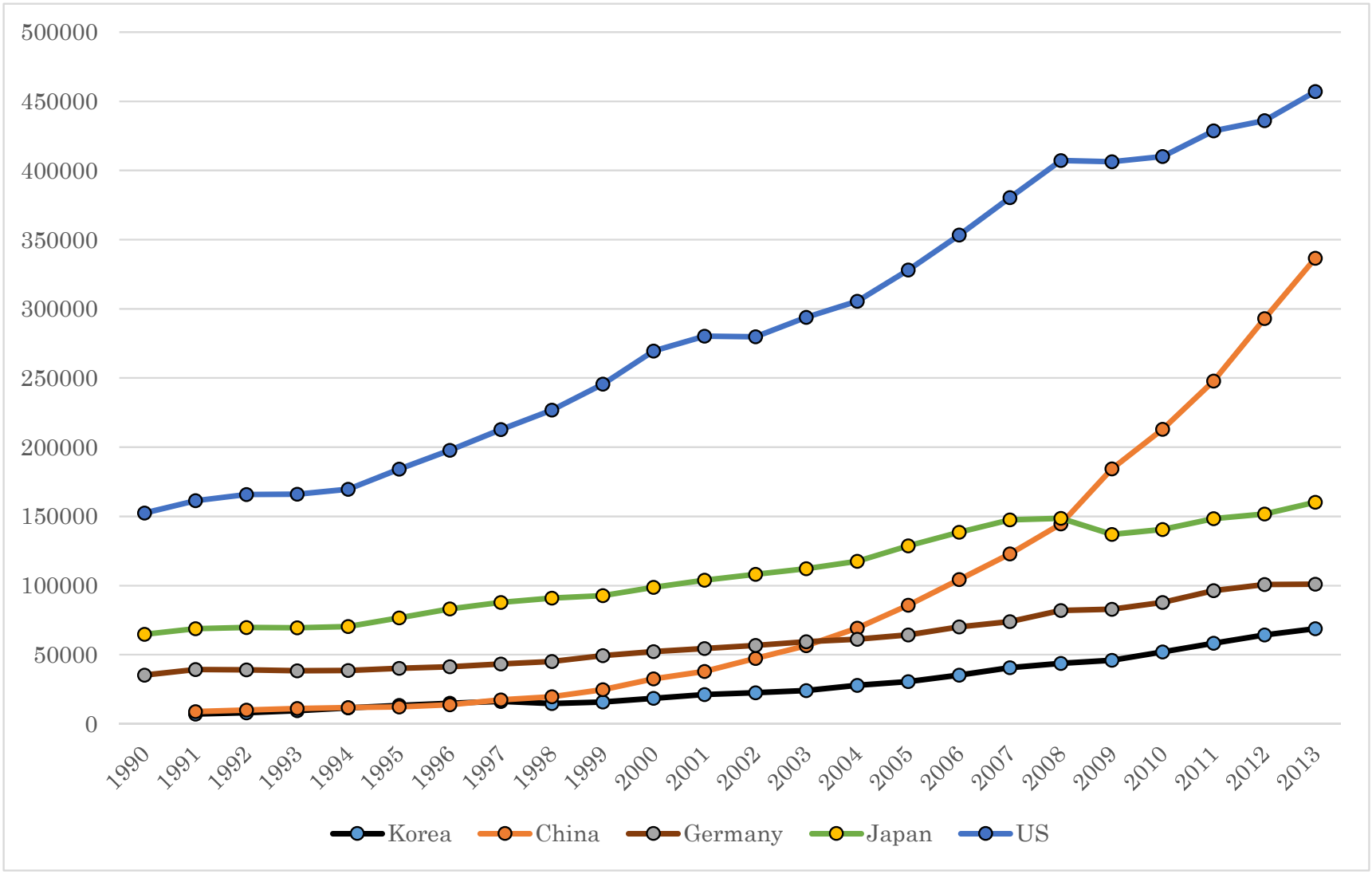
1. "Technological" innovation and IP management of Japanese companies
   - Technological and Non-technological
   - Schumpeter (1942)
     - new products (product innovation)
     - new methods of production (process innovation)
     - opening up of new markets
     - new sources of supply
     - new ways to organize business
   - creation of social value
2. ERIA's research project
   - IP-related problems and challenges facing Japanese multi-national companies in ASEAN

"Technological" innovation

- Easier to measure
- Rich data source
  - Input: R&D
  - Outcome: patent and paper
  - Performance: introduction of new products, sales, stock price…

R&D expenses

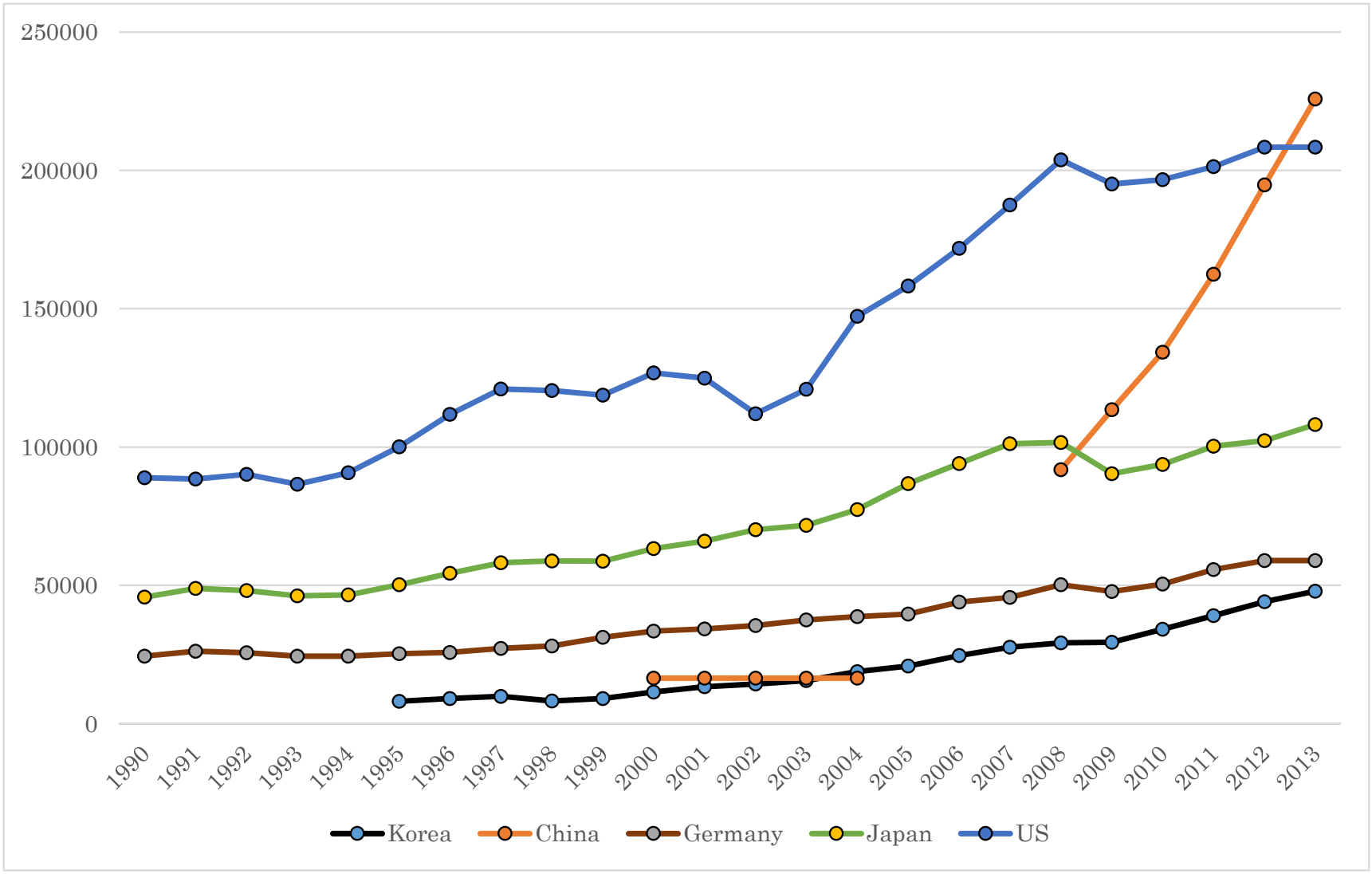
mil. USD



Data source: Global note (based on OECD)

RD expenses of manufacturing companies

mil. USD

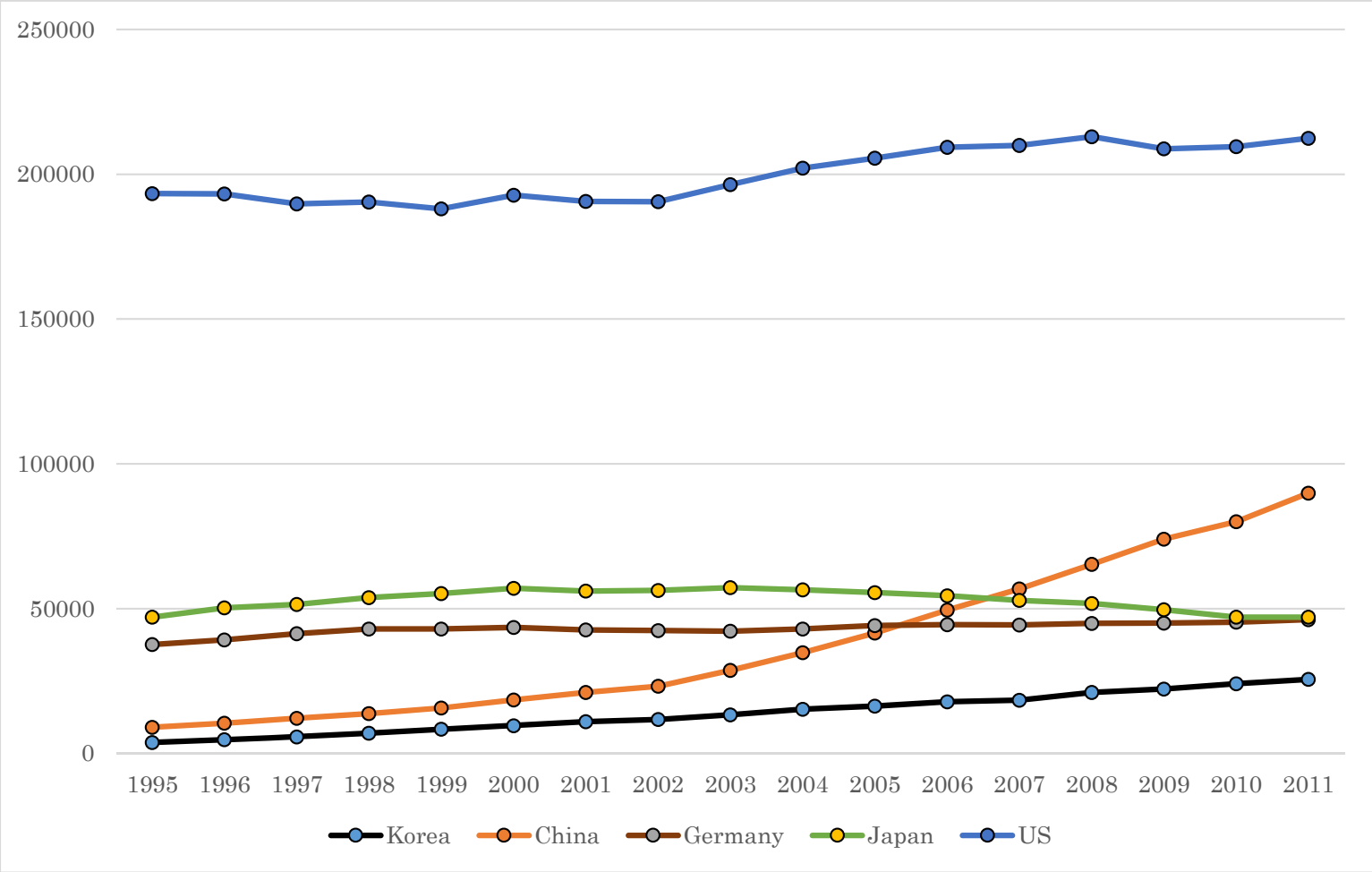


Data source: Global note (based on OECD)

Input (R&D)

- US is the largest R&D investor in the world and shows a constant significant increase
- Rapid growth of China's R&D investment is outstanding
  - China is already No. 1 in the manufacturing industry

of papers published

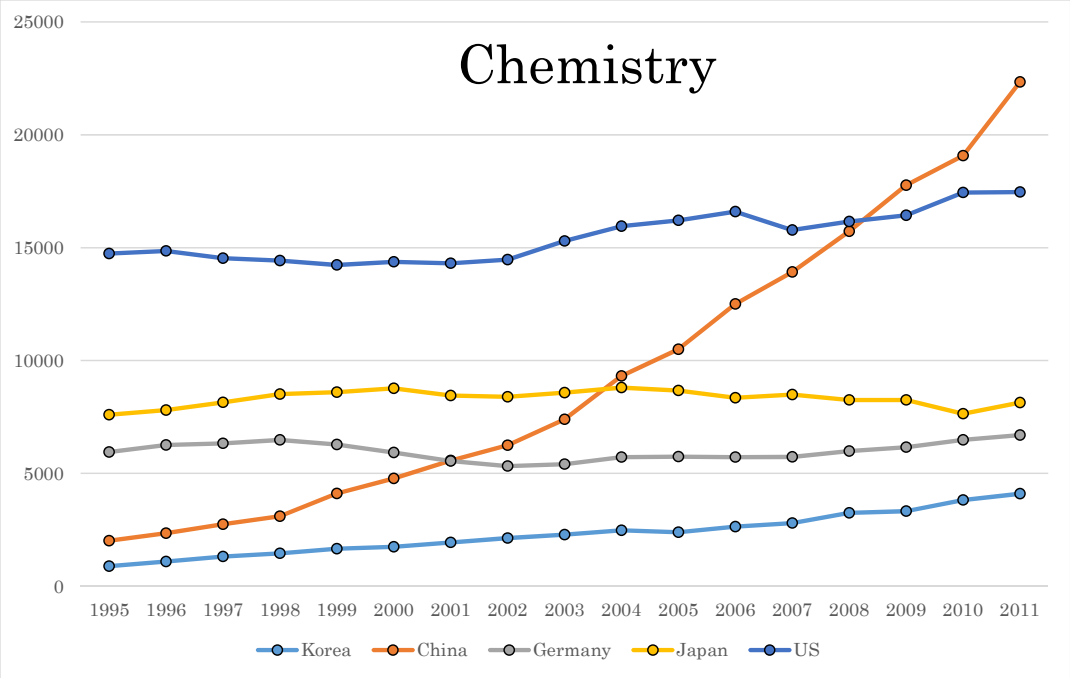


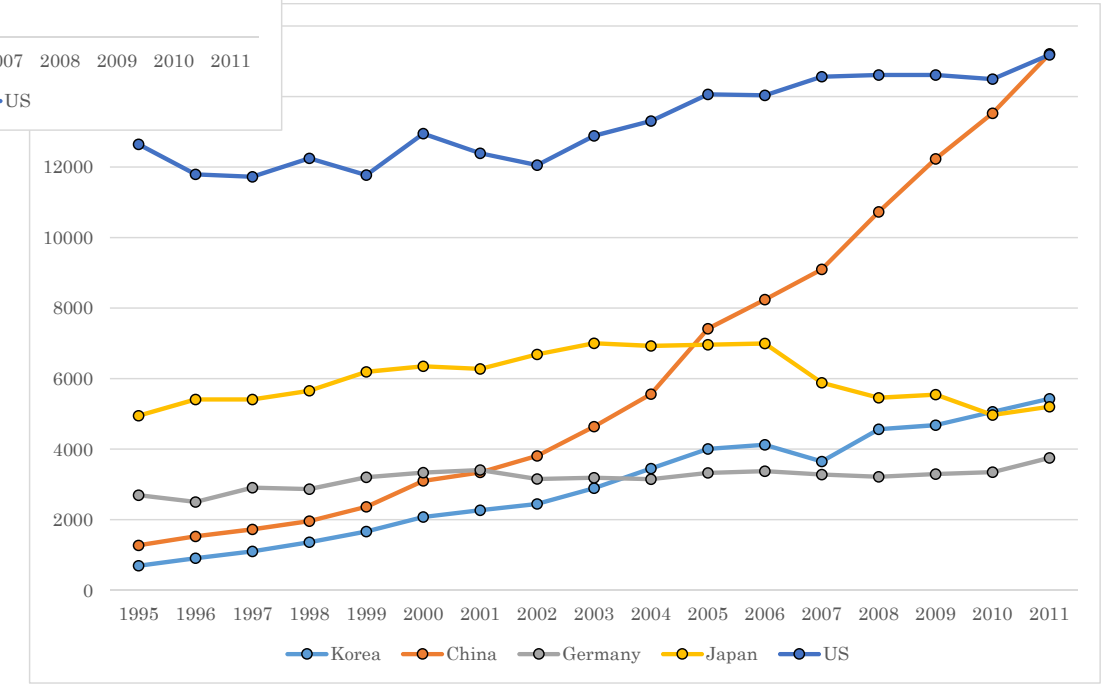
Note1: Sample is limited to the papers covered by Science Citation Index (SCI) or Social Sciences Citation Index (SSCI)

Note2: Number is fractionally counted if the authors' affiliated institutions are located in multiple countries

Data source: Global note (based on OECD)

Papers in Chemistry and Engineering





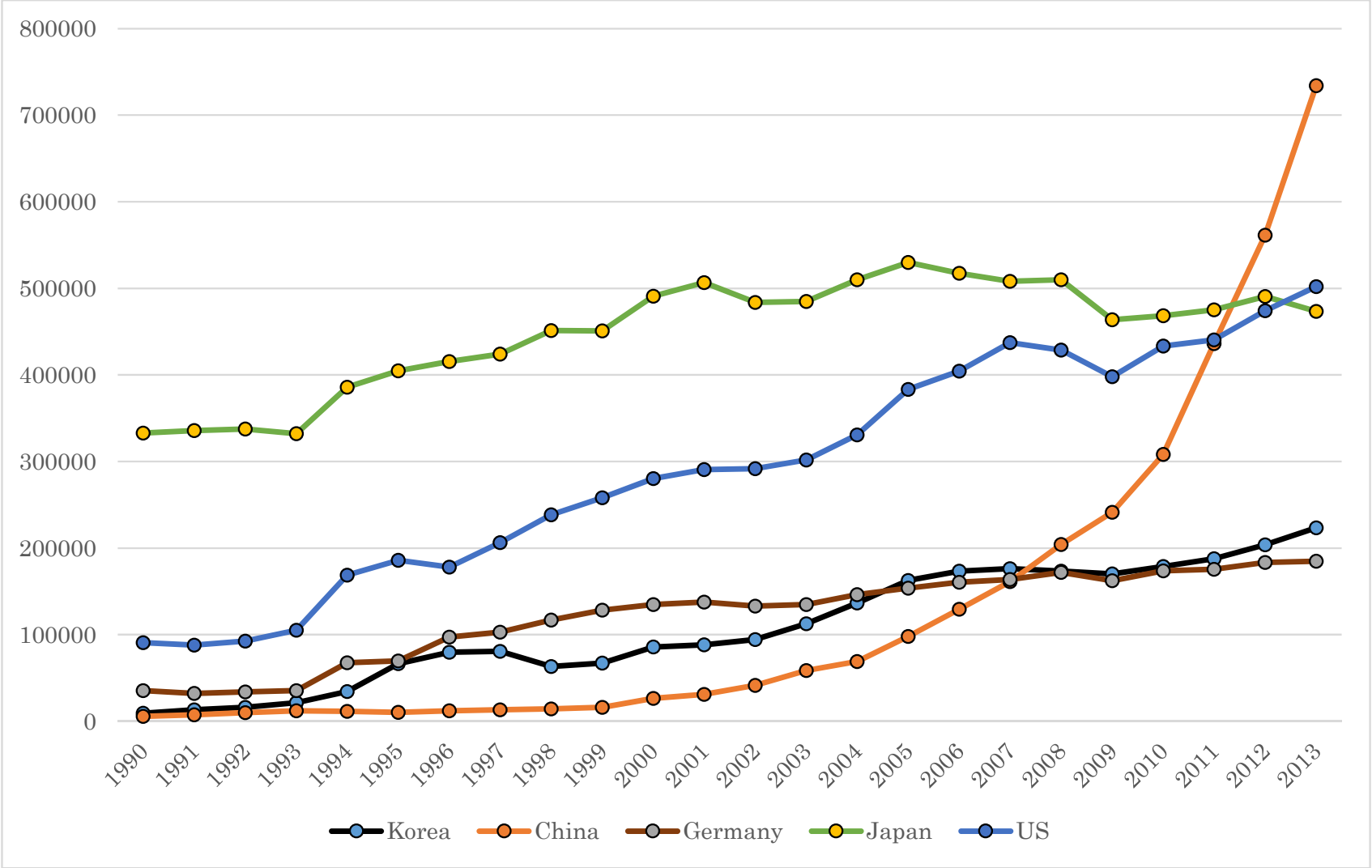
Data source: Global note (based on OECD)

Outcome (paper)

Scientific performance

- US has an overwhelming competitiveness, but its growth is low
- China shows an explosive increase
  - in some fields China is already No.1
- Japan's presence is decreasing

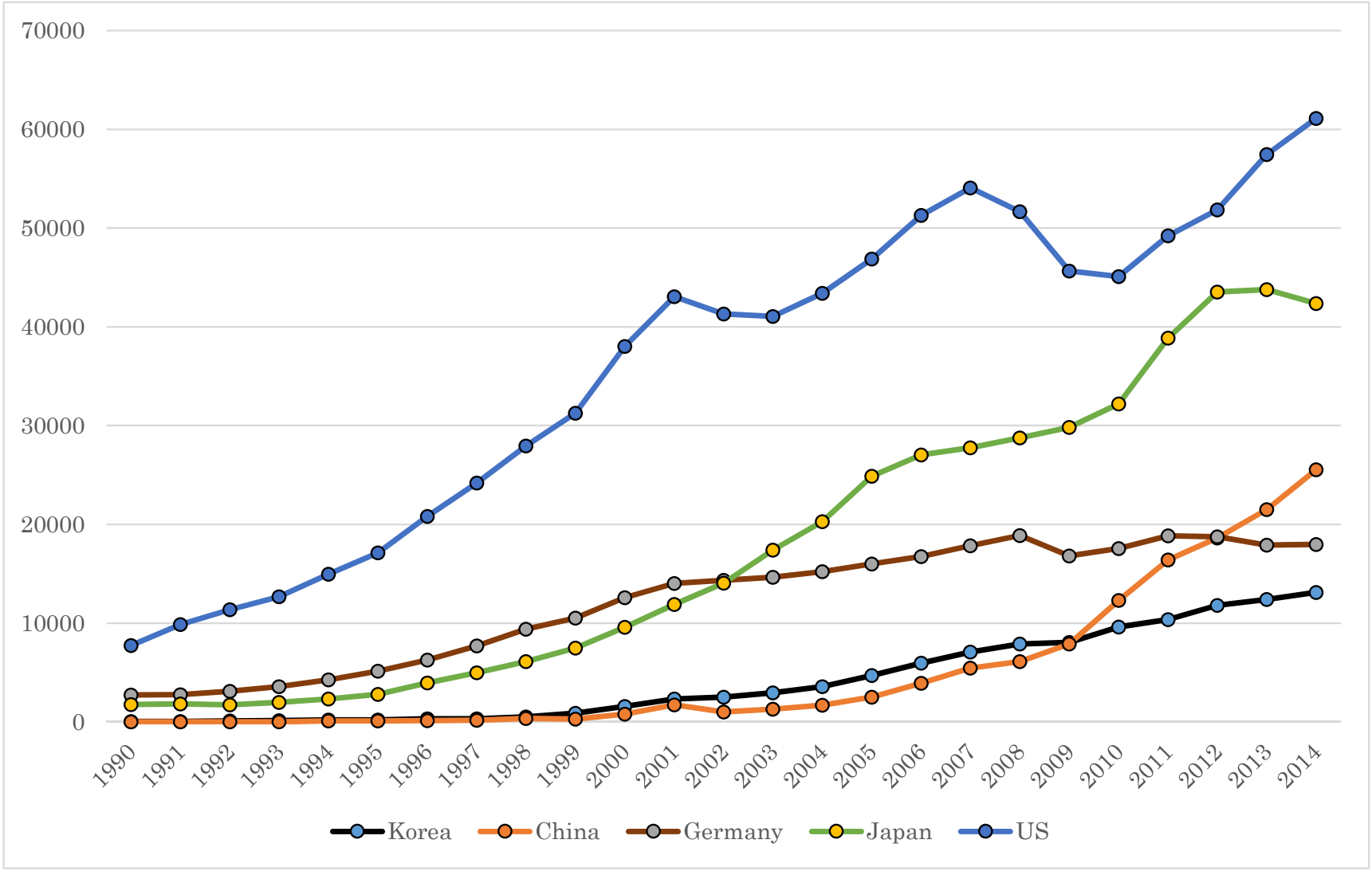
of total applications by nationality



Note: Number of total applications is double counted if an application is filed to foreign country claiming priority

Data source: Global note (based on WIPO)

of PCT applications

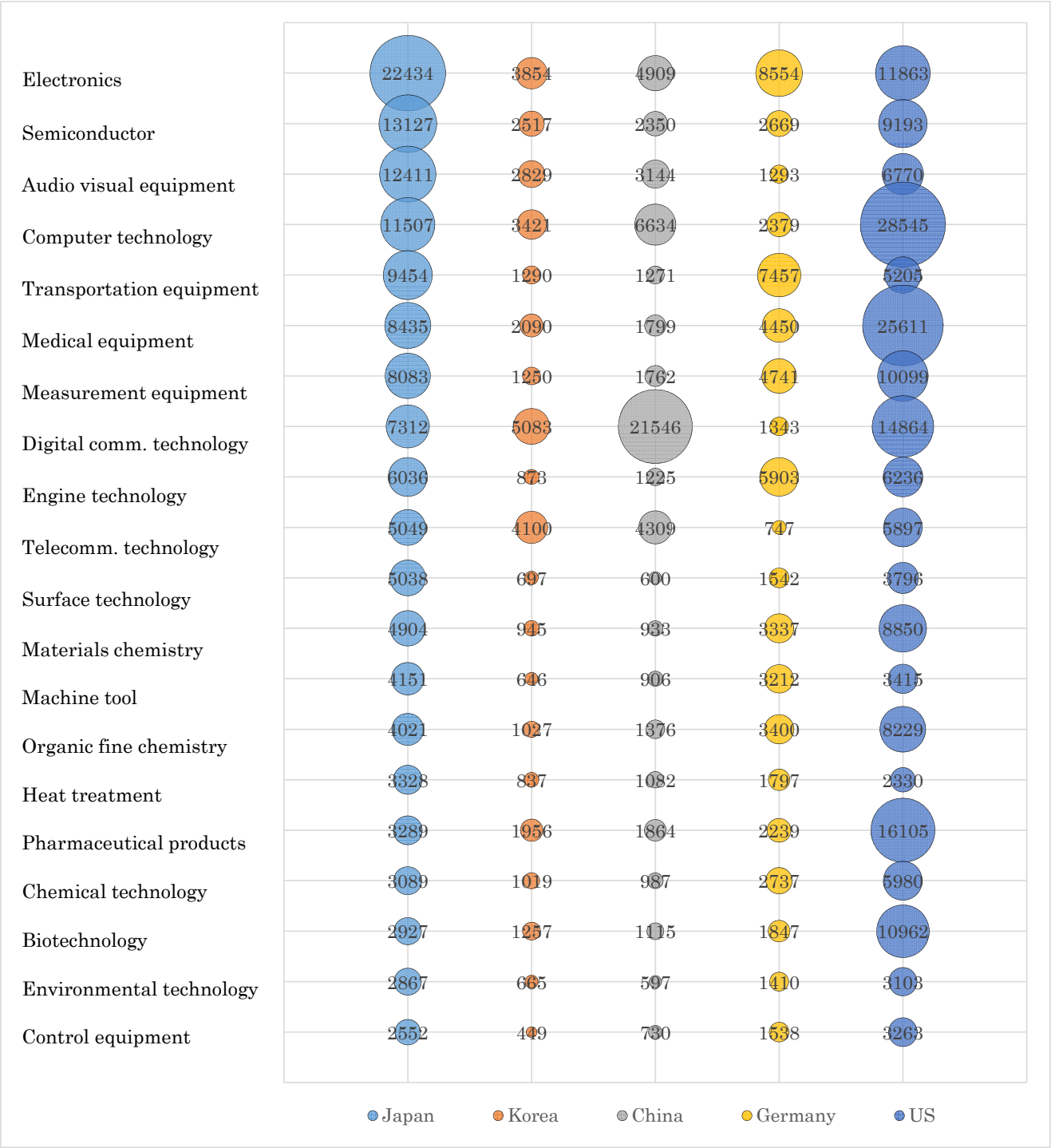


Data source: Global note (based on WIPO)

Patent application

Technological outcome

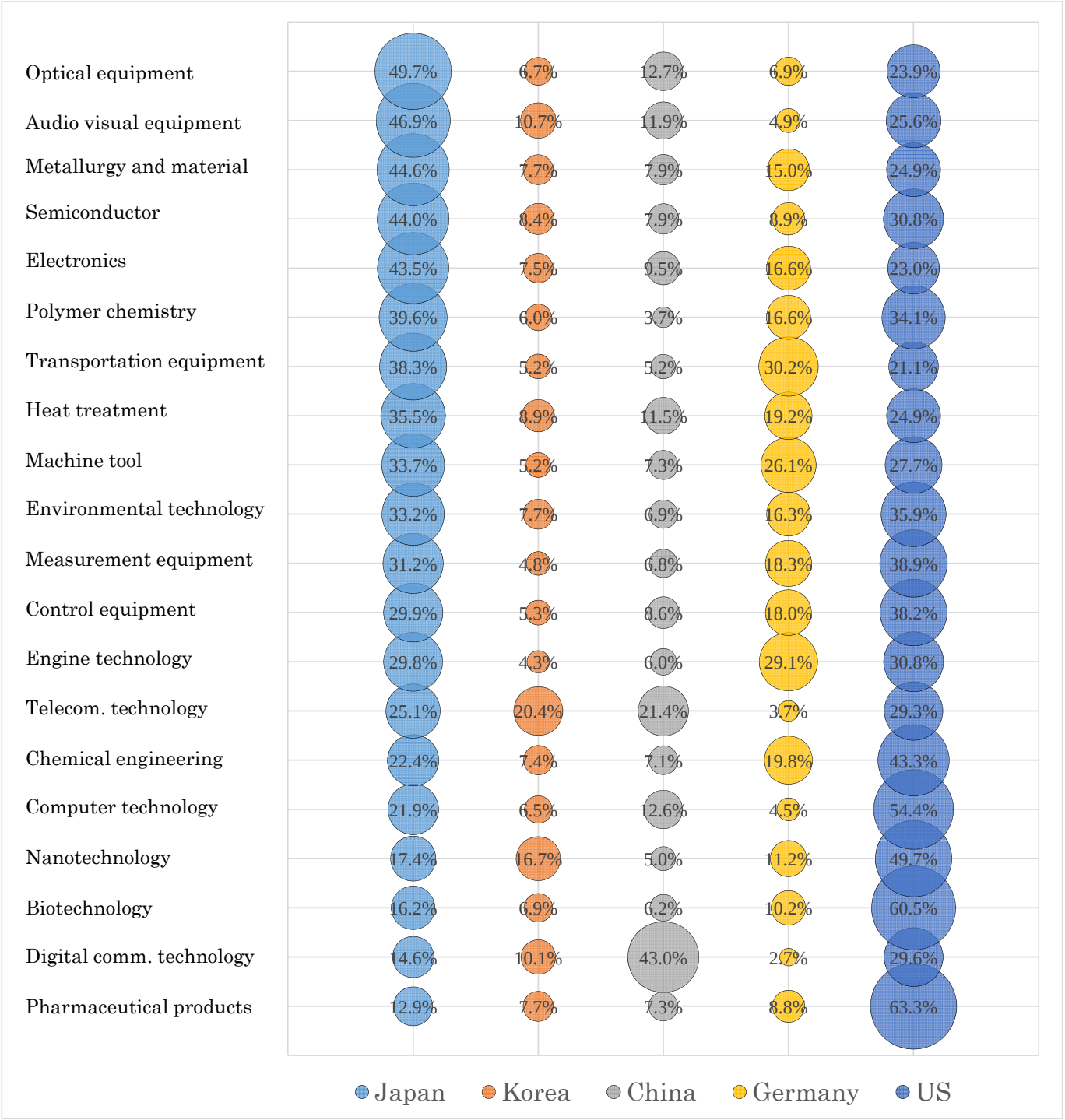
- Total applications including domestic applications
  - China is the largest patent filer as well as R&D investor though US shows an increasing trend
  - Only Japan shows a decreasing trend though other countries increase the number of patent applications
    - Japan was No.1
- PCT applications
  - US has a strong competitiveness and it is increasing
  - China shows an increasing trend but the difference with Japan is still large
  - Japan has a decreasing trend which would lose the lead to China



of PCT applications (2010-2014)

- Japan
  - Electronics
  - Semiconductor
  - Audio visual
- Korea
  - Digital comm.
  - Telecom.
  - Electronics
- China
  - Digital comm.
  - Computer tech.
  - Telecom.
- Germany
  - Electronics
  - Transportation
  - Engine
- US
  - Computer tech.
  - Medical equip.
  - Pharmaceutical

Data source: Global note



Share of PCT appl. (2010-2014)

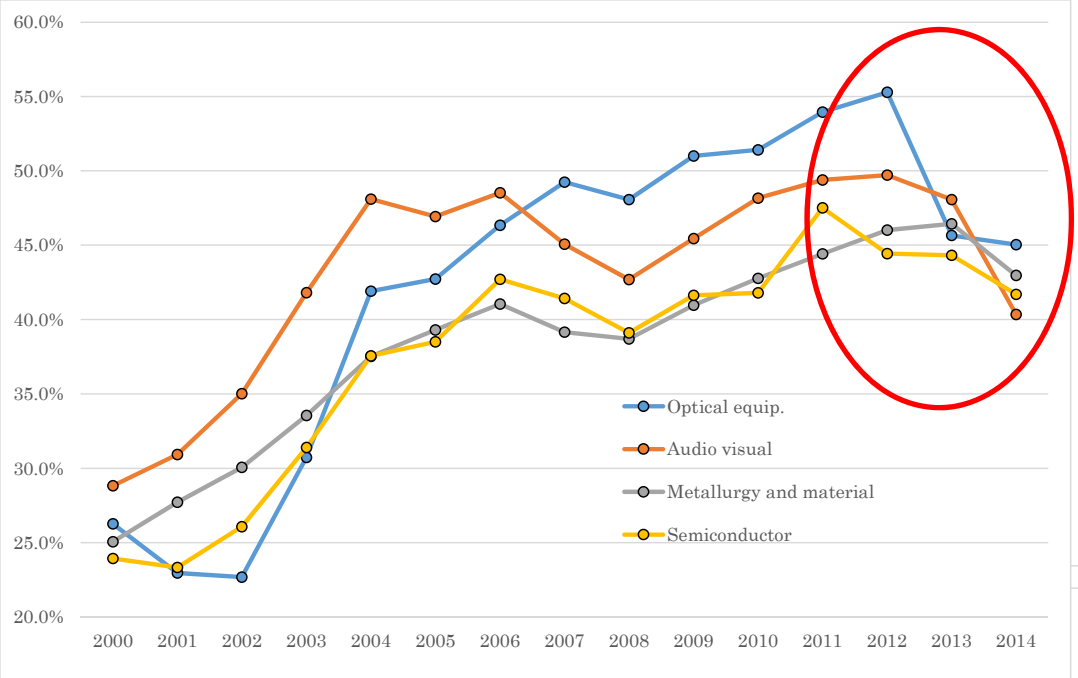
- Japan
  - Optical equip.
  - Audio visual
  - Metallurgy and mat.
- Korea
  - Telecom.
  - Nanotech.
  - Audio visual
- China
  - Digital comm.
  - Telecom.
  - Optimal equip.
- Germany
  - Transportation
  - Engine tech.
  - Machine tool
- US
  - Pharmaceutical
  - Biotechnology
  - Computer tech.

Data source: Global note

Relative advantage: Share of PCT applications among 5 countries

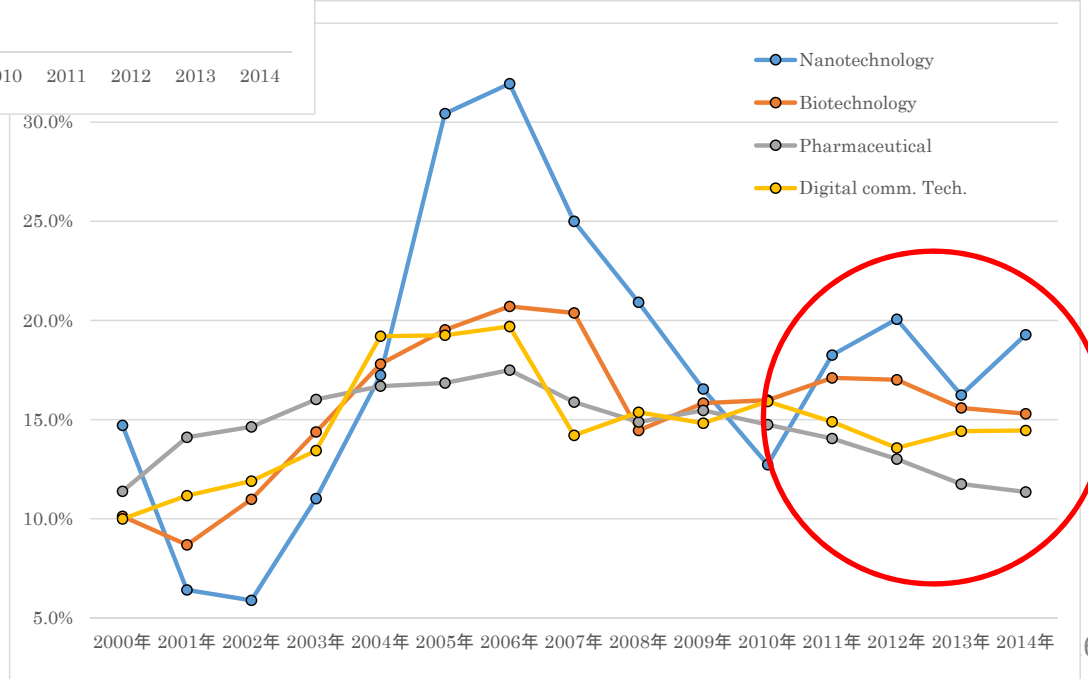
- Japan
  - Strength: Optical equipment, Audio visual equipment, Metallurgy and material
  - Weakness: Nanotech, Biotech and Pharmaceutical
- Korea and China has similar technological structure
  - Compete in Telecommunication technology and Digital communication technology
- China has dominant power in Digital communication technology
- US has high advantage in Pharmaceutical products, Biotechnology, Computer technology
- Competition (more than 3 countries have more than 20%)
  - Telecommunication: JP, KR, CN and US
  - Engine: JP, DE and US
  - Machine tool: JP, DE and US
  - Transportation equipment: JP, DE and US

Changes in the share of Japanese PCT applications



← Strength has been decreasing

Weaknesses are still → weaknesses or worsen



Japanese innovation policy

- Abe Administration: "World's most innovation-friendly country"
- Comprehensive Strategy on Science, Technology and Innovation
  - "Toward establishing a Nation based on science, technology and innovation"
  - Council for Science, Technology and Innovation (CSTI) under Cabinet Office is a commander

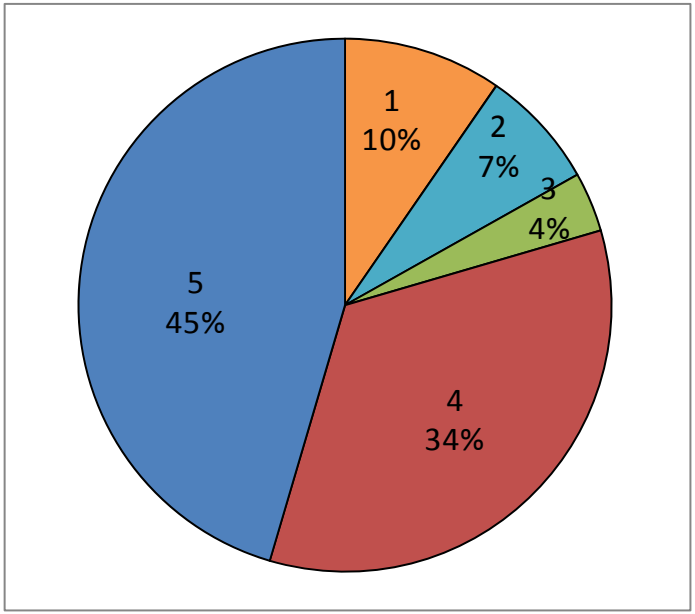
Japanese innovation policy (cont.)

- New mechanism leading the government-wide budget strategy
  - Cross-Ministerial Strategic Innovation Promotion (SIP) program
    - Top down approach: CSTI designates research theme and appoints Program Director and allocates the budget
  - Impulsing Paradigm Change through Disruptive Technologies (ImPACT) program
    - To encourage challenges for high-risk but high-impact research project
    - CSTI selects the Program Managers who have innovative ideas and delegates authority
- Promotion of Open Innovation: international industry-academia-government joint R&D collaborations
  - Open science
  - Enhancing research capability of university
  - Intellectual property management

Importance of scientific literature for corporate inventors (N=801)

- For about 20% inventions, scientific literature was important knowledge source for the conception and the implementation of the R&D
- 9.6% of inventions could not have been conceived if it were not for the scientific literature

If it were not for the scientific literature published in the last 15 years,		frequency	share
1	the idea for the invention could not have been conceived	77	9.6%
2	implementation of R&D would have been extremely difficult	58	7.2%
3	getting a result would have been significantly delayed	29	3.6%
4	getting a result would have been slightly delayed	273	34.1%
5	it would have had no impact	364	45.4%

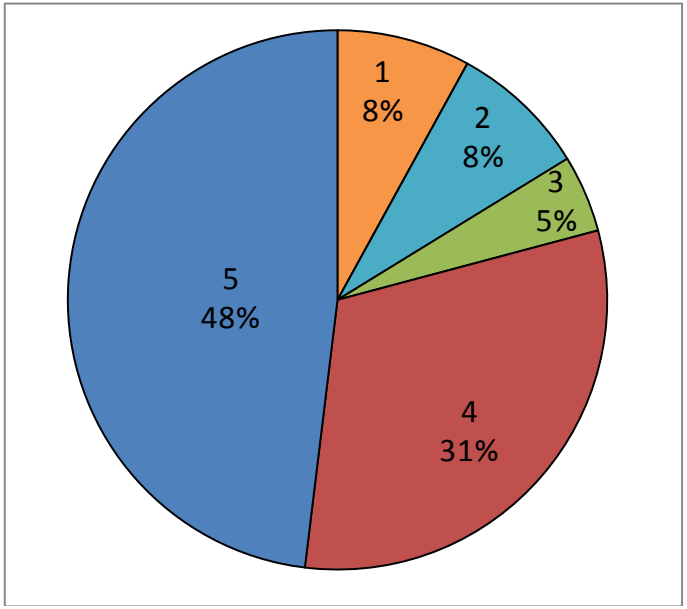


Source: Nagaoka and Yamauchi (2015) "the use of science and its identification"

Importance of research equipment and material for corporate inventors (N=801)

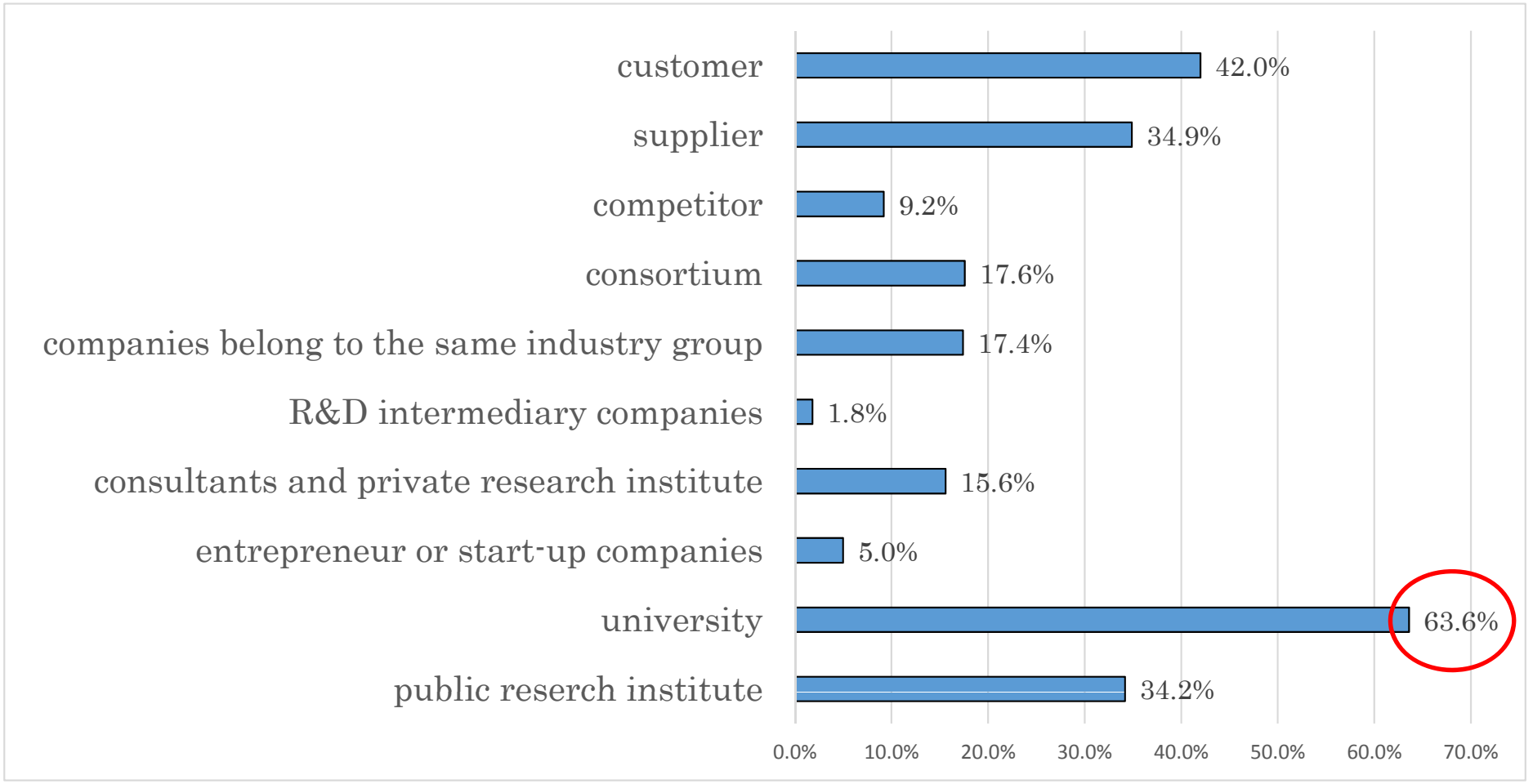
- For about 20% of inventions, scientific research equipment and materials had important impact on the conception or implementation of the R&D

If it were not for the equipment or research materials those embodies scientific knowledge in the last 15 years,		frequency	share
1	the idea for the invention could not have been conceived	64	7.8%
2	implementation of R&D would have been extremely difficult	66	8.5%
3	getting a result would have been significantly delayed	37	4.7%
4	getting a result would have been slightly delayed	249	30.6%
5	it would have had no impact	385	48.4%



Source: Nagaoka and Yamauchi (2015) "the use of science and its identification"

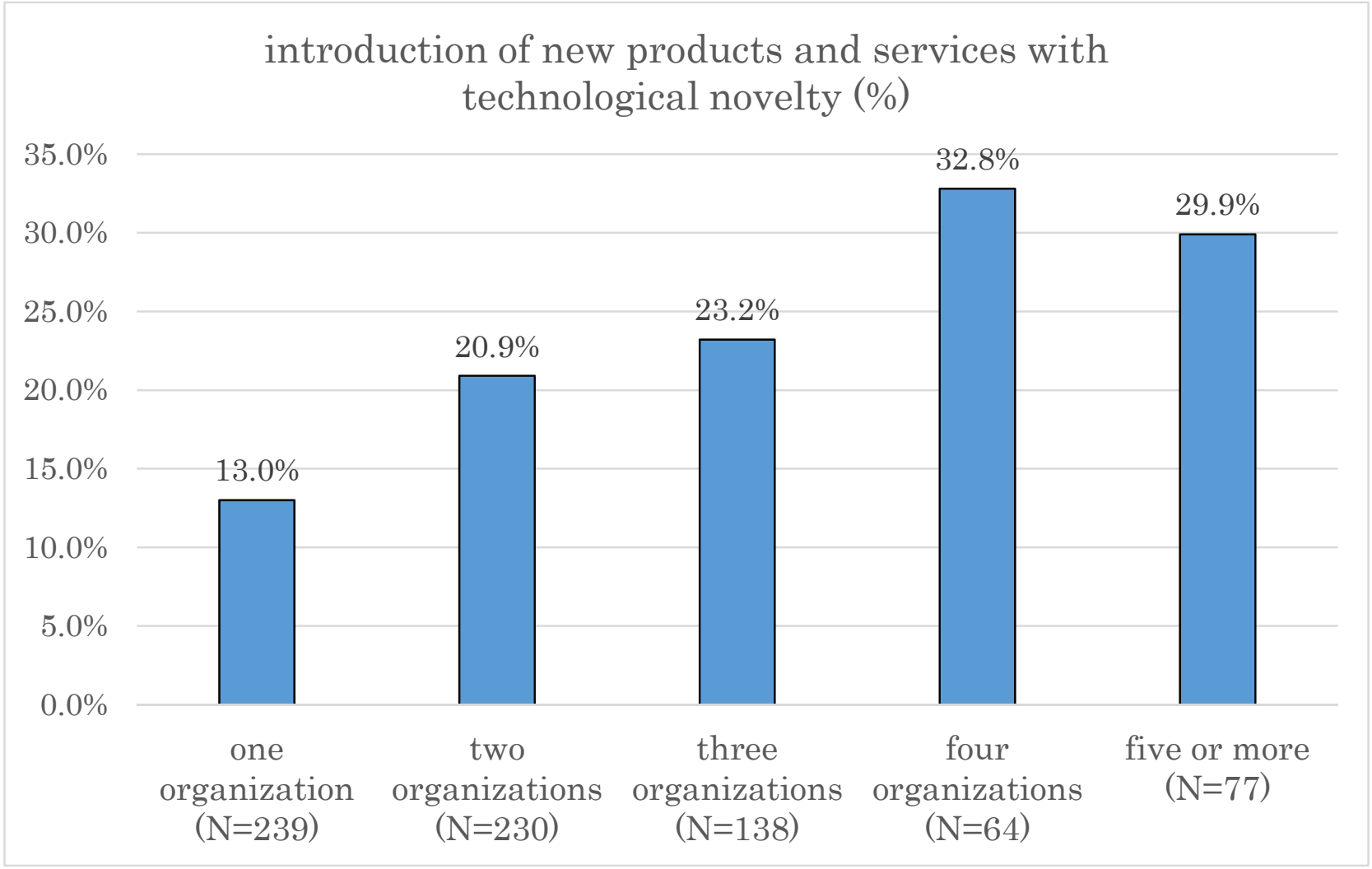
Collaboration with university (N=848)



Source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

Diversity of collaboration partners and innovation performance

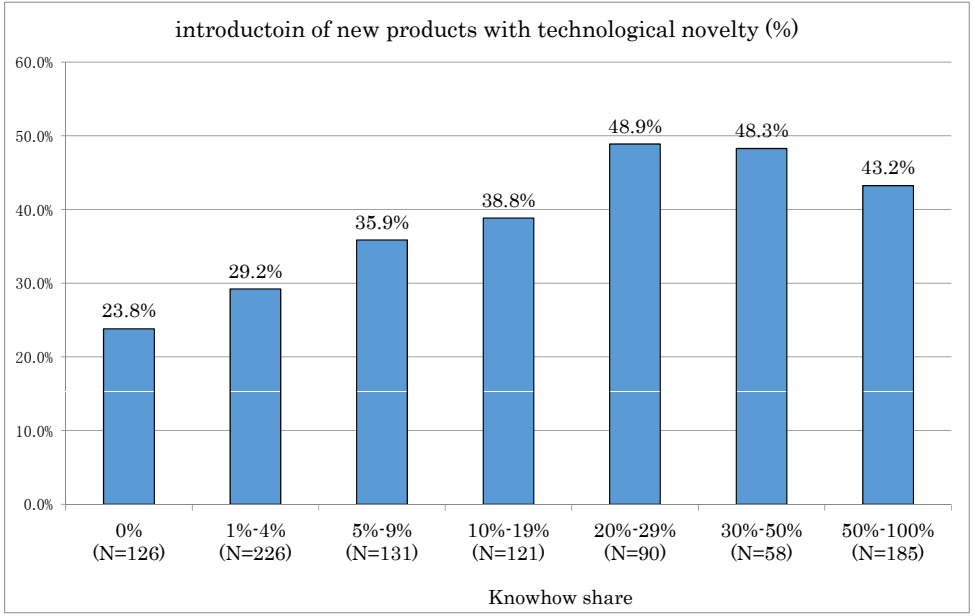
- Balance between openness and closeness is important

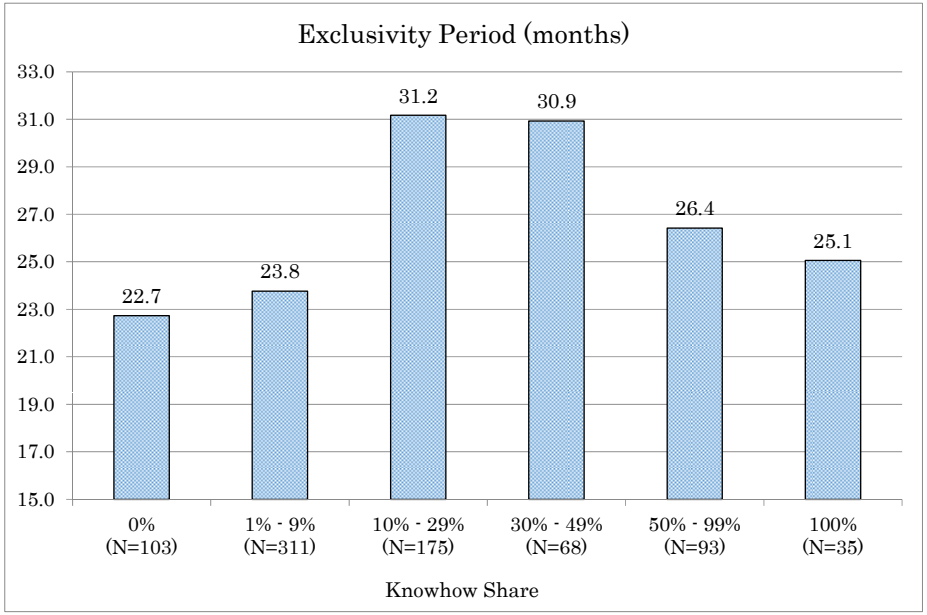


Source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

Share of knowhow (closeness) and innovation performance

- Excessive secrecy has a negative effect
  - Inverted-U shape relation b/w the share of know-how to the patentable inventions and innovation performance





Source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

IP management and Innovation Performance (descriptive statistics)

	N	Mean	Median	Min	Max
A. Introduction of Novel Products (Yes =1, No=0)	865	0.41	0.0	0	1
B. Introduction of Improved Products (Yes =1, No=0)	831	0.81	1.0	0	1
C. Exclusivity Period (month)	729	26.1	18.0	0	300
1. Number of Patent Applications in 2010	842	81.0	6.0	0	4205
2. Share of Kowhow	845	0.22	0.1	0	1
3. Emphasis on Design and Trademark (Yes =1, No=0)	837	0.51	1.0	0	1
4. Early involovement of IP department (Yes =1, No=0)	894	0.19	0.0	0	1
5. R&D Collaboration with University (Yes =1, No=0)	1004	0.63	1.0	0	1

Performance indices:

A. Introduction of Novel Products
   - Introduction of new products, services or production methods with novel technology

B. Introduction of Improved Products
   - Introduction of improved products, services or production methods based on the existing technology

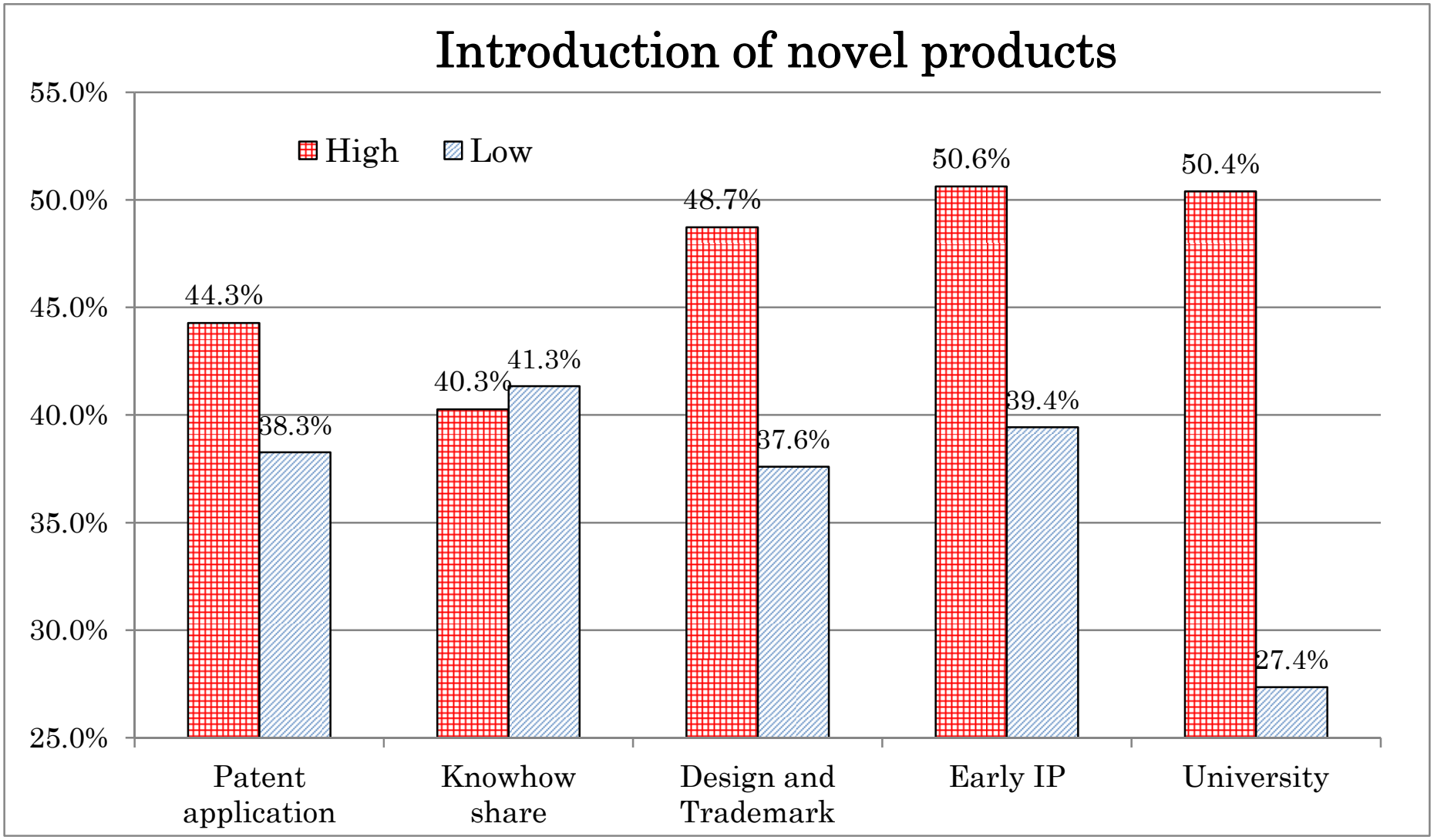
C. Exclusivity Period
   - Period between the introduction of products and the appearance of competing products

IP management and Innovation Performance (descriptive statistics)

Determinant factors:

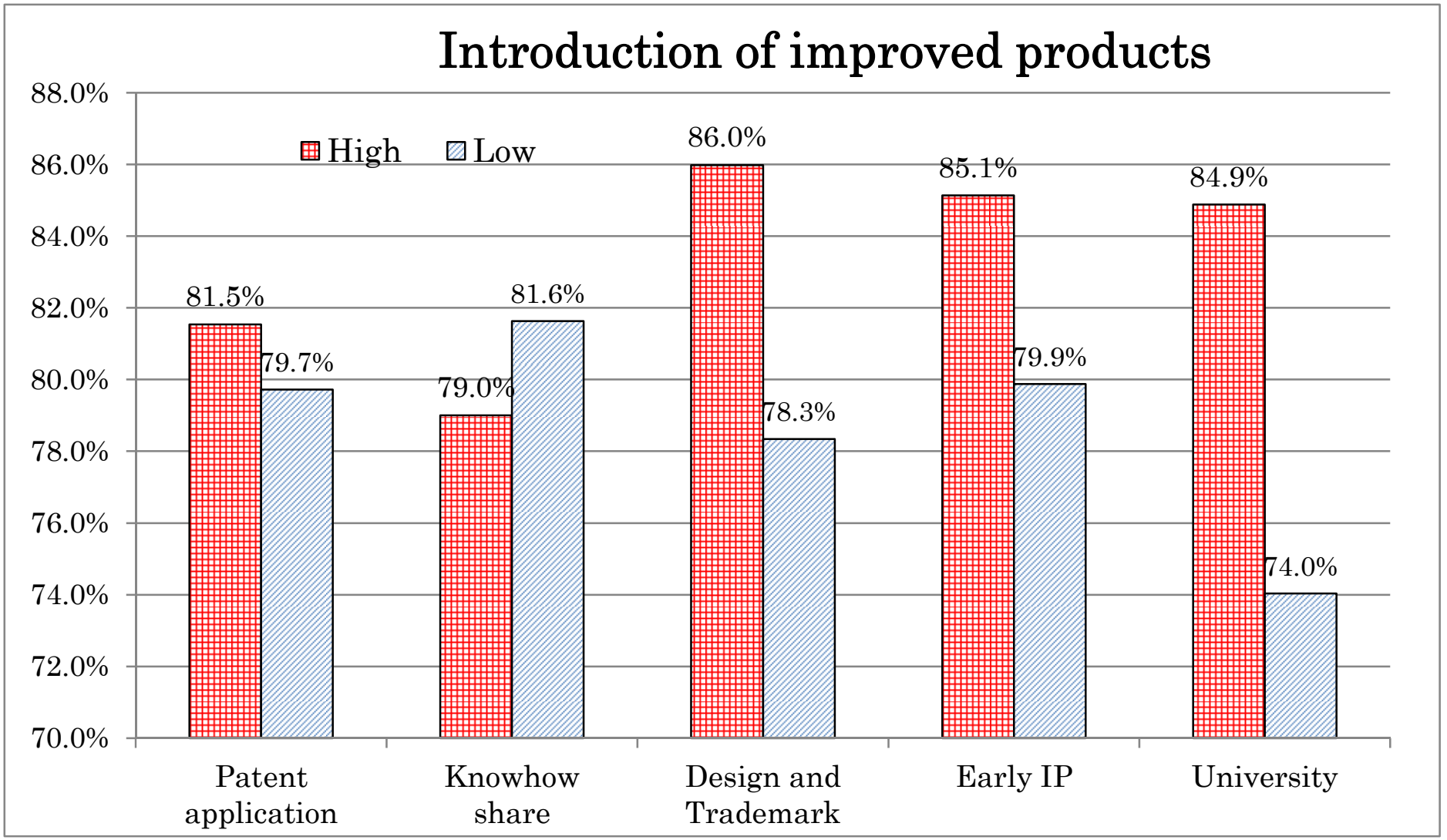
1. Number of patent applications (in 2010)
2. Share of Knowhow
   - Share of the inventions kept as knowhow among the patentable inventions
3. Emphasis on Design Patent and Trademark
   - Place a high value on design and trademark as an appropriability measure
4. Early involvement of IP department
   - Involvement in decision making in the early stage of innovation process (research theme selection)
5. R&D collaboration with University or Public institute
   - Experience of R&D collaboration with University during the last 5 years

Effects of IP management on innovation performance: Introduction of novel products



Data source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

Effects of IP management on innovation performance: Introduction of improved products



Data source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

Effects of IP management on innovation performance: Introduction of new products

- Firms with higher patenting activity have higher probability of introducing new products
  - Feedback effect by patenting is larger
- Knowhow share has a negative correlation with the introduction of new products
  - Closeness decreases the feedback effect
- Higher reliance on design patent and trademark has a positive correlation with the introduction of new products
  - Usage of IPR improves the appropriability of firms which would lead to an increase in the probability of introducing new products
- Early involvements of IP department is associated with higher probability of introducing new products
  - Enables the firms to develop products reflecting the technological trend which would ease the future technological competition
- Collaboration with university has a significant positive effect

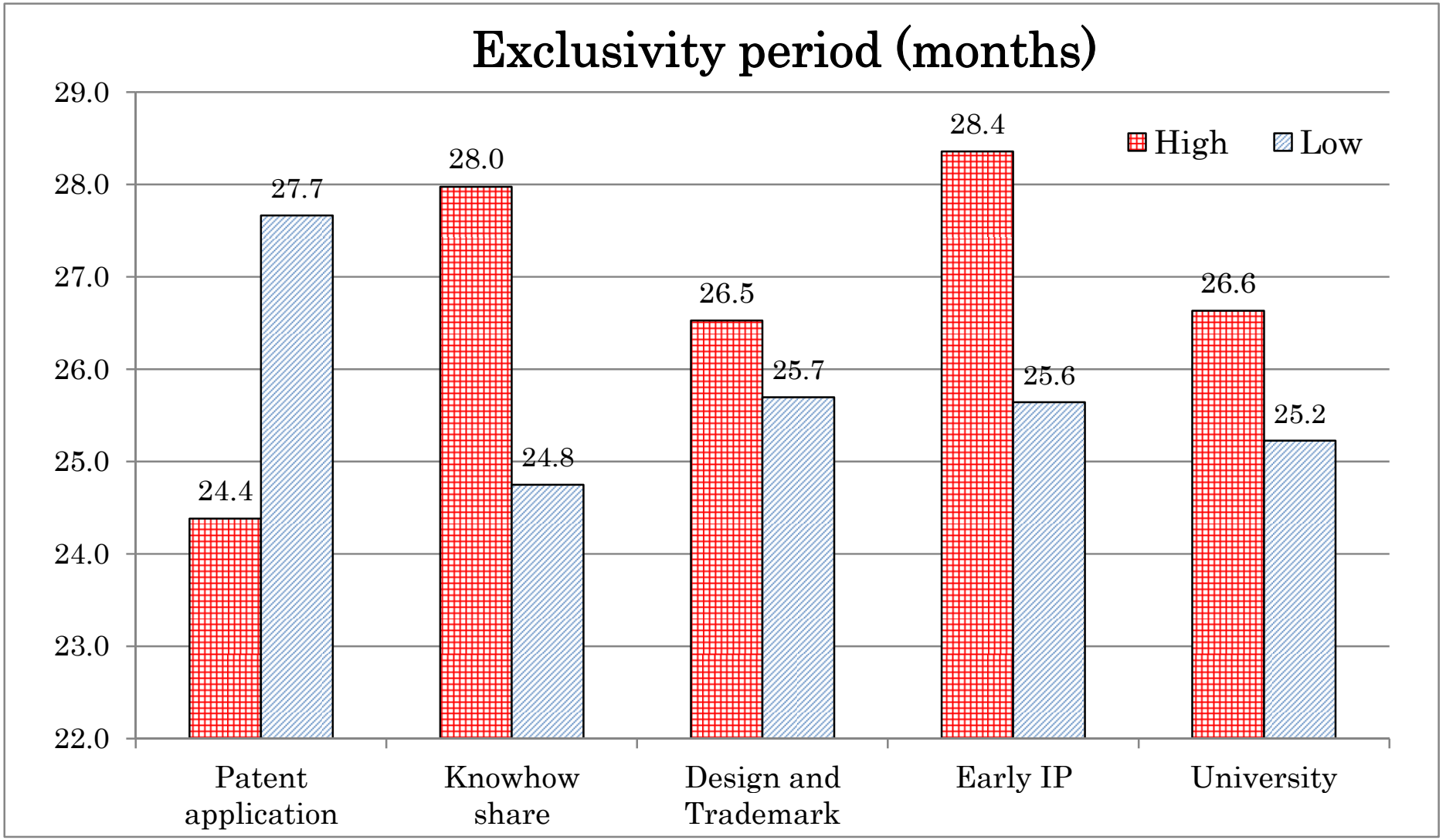
Effects of IP management on innovation performance: Introduction of new products

- All IP activities except secrecy are positively correlated with the development of novel/improved products

❖ Note

- Graphical analysis may reflect the spurious correlation and do not necessarily indicate causality, which indicates the advantages of using regression analysis
  - Using regression analysis, we can virtually compare the innovation performance between the identical firms with the same technological capability, the same product in the same industry…

Effects of IP management on innovation performance: Exclusivity period

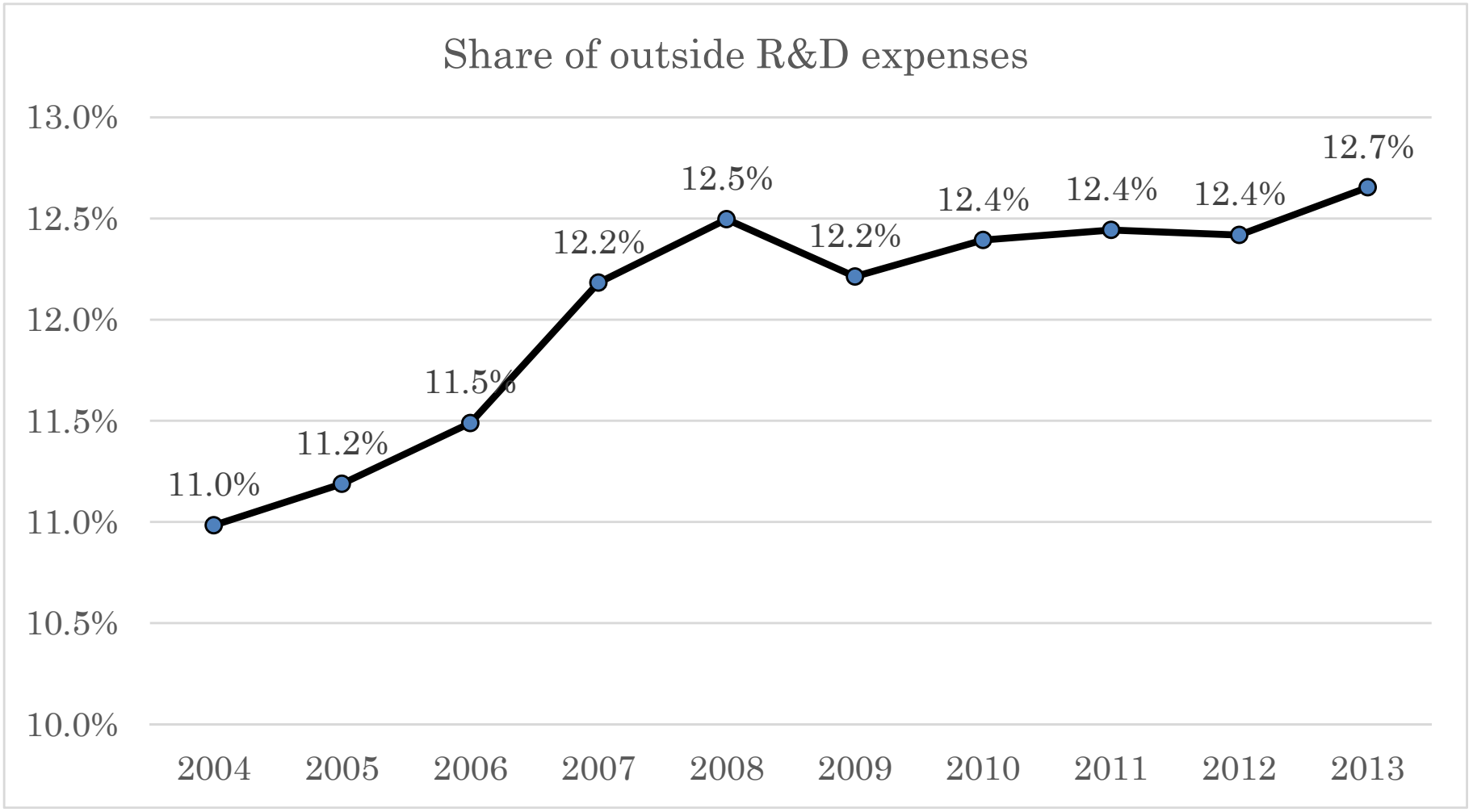


Data source: Survey on Research Activities of Private Corporations 2012 (NISTEP)

Effects of IP management on innovation performance: Exclusivity period

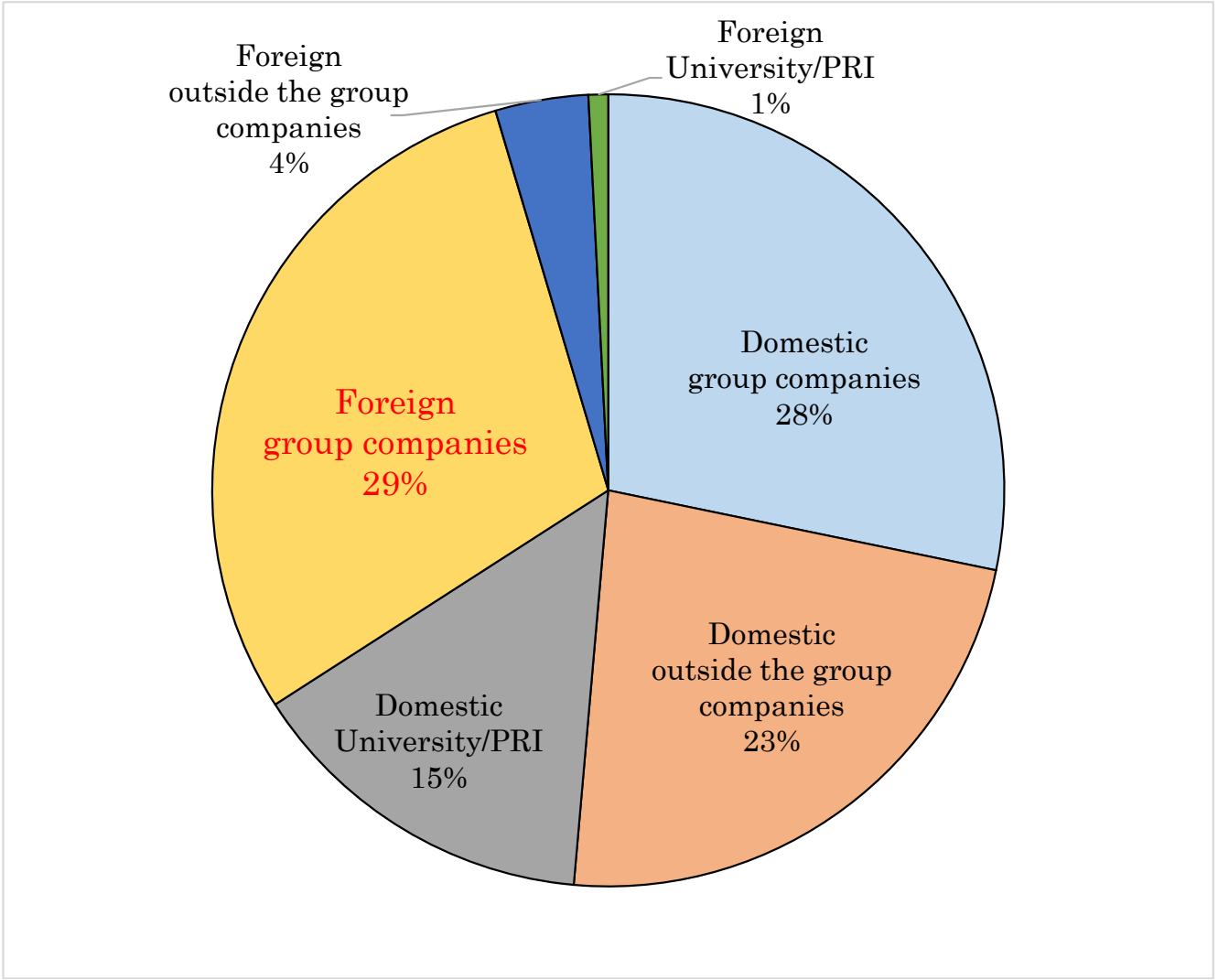
- Strong positive correlation between knowhow share and the exclusivity period
  - –keeping a core technology as secrecy may delay the appearance of rival product
  - –“too much” patenting can induce the development of competing technology
- Early involvement of IP department is important to extend the exclusivity period
- Design patent and trademark is related to long product lifetime

Open innovation activity
Share of R&D expenses paid to outside organization



Data source: Survey of Research and Development (Ministry of Internal Affairs and Communications)

Foreign group companies as partners of open innovation: Share of outside RD expenses



Note: share of expenses is calculated by using the average expenses to each organization per company and thus includes some noise

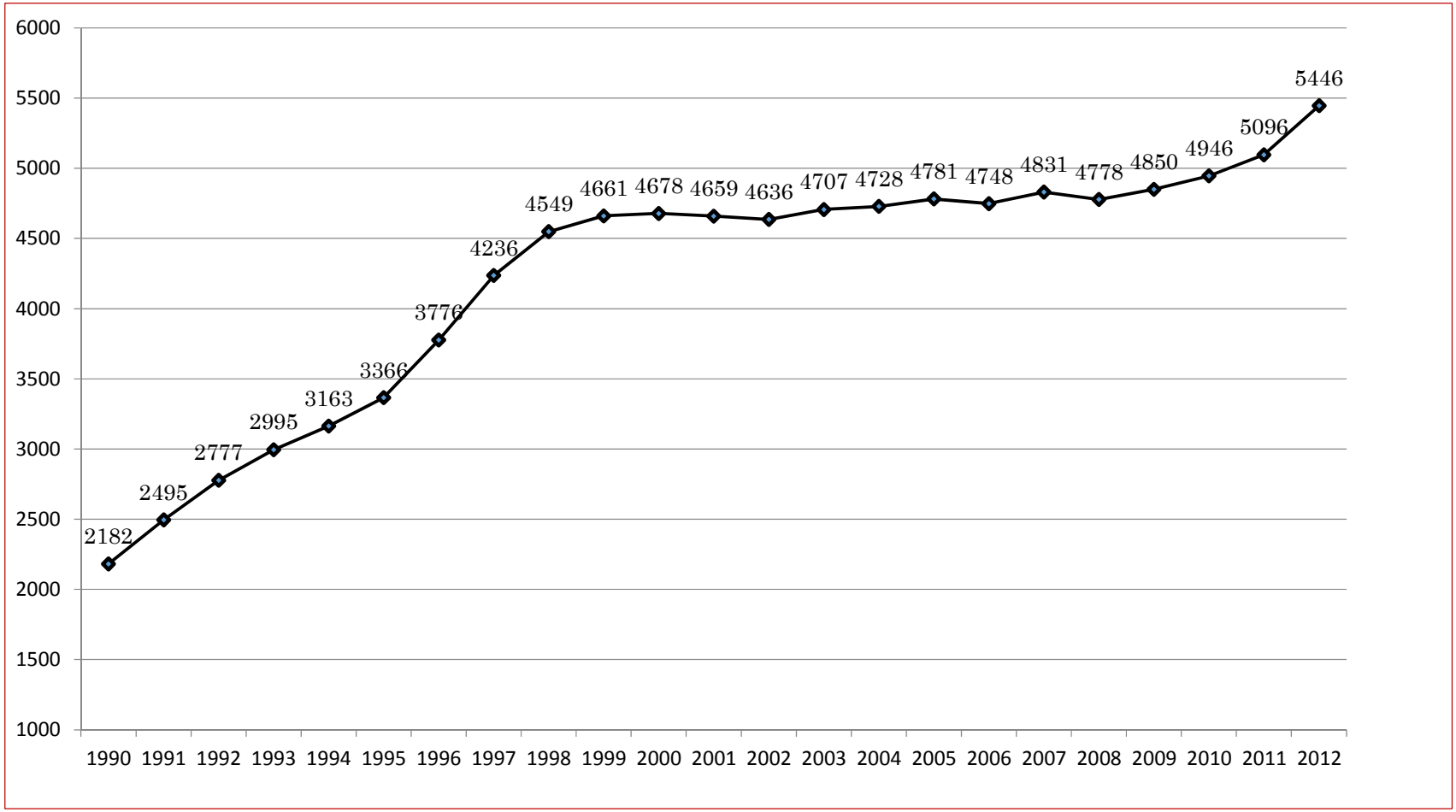
Data source: Survey on Research Activities of Private Corporations 2013 (NISTEP)

Foreign group companies as partners of OI

- Open innovation activity in terms of outside R&D expenses has been increasing
- Significant importance of foreign subsidiary as a partner of open innovation

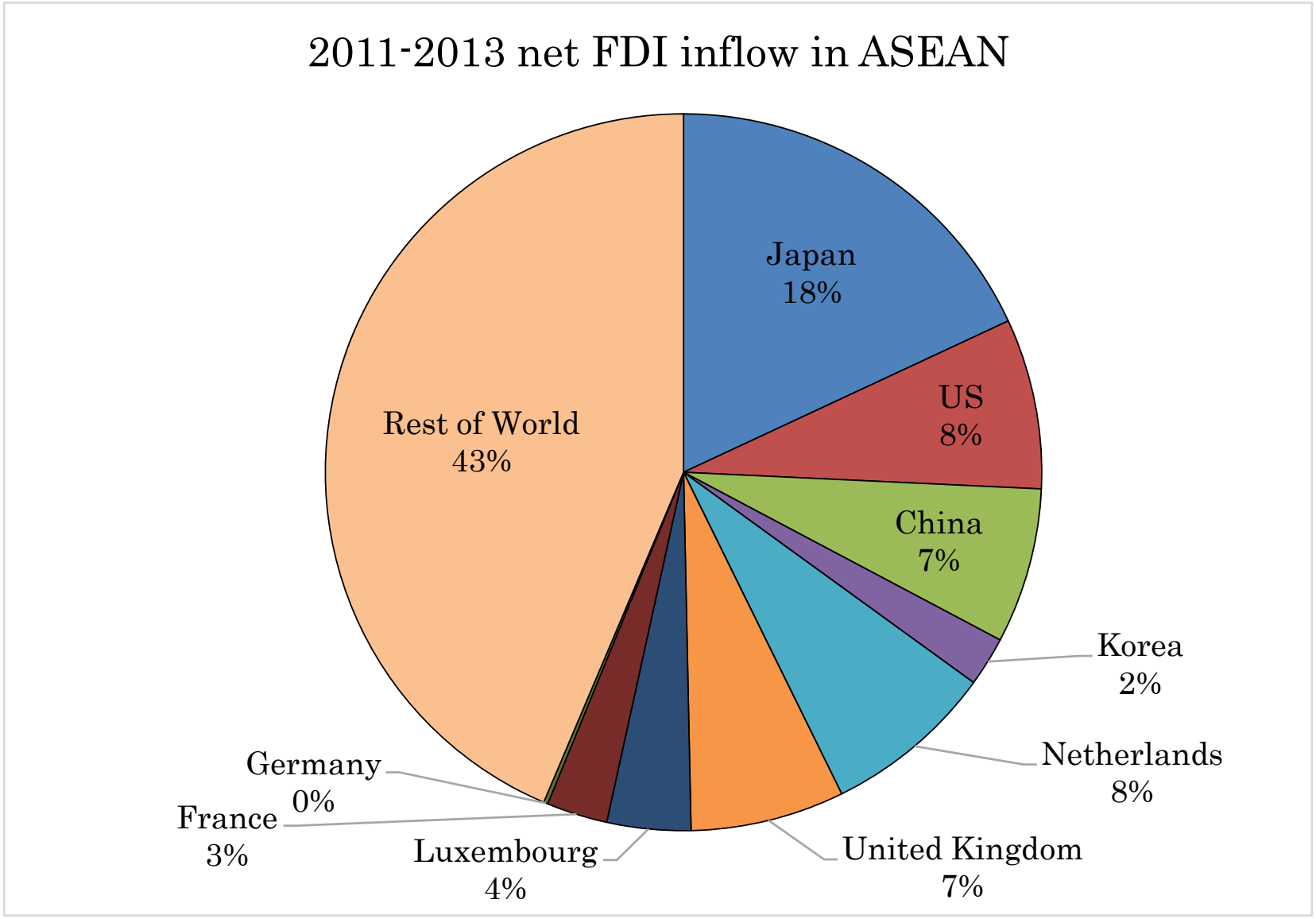
Increasing number of Japanese local subsidiaries in ASEAN countries

- The number of existing local subsidiaries of Japanese multi-national companies in ASEAN countries has been increasing



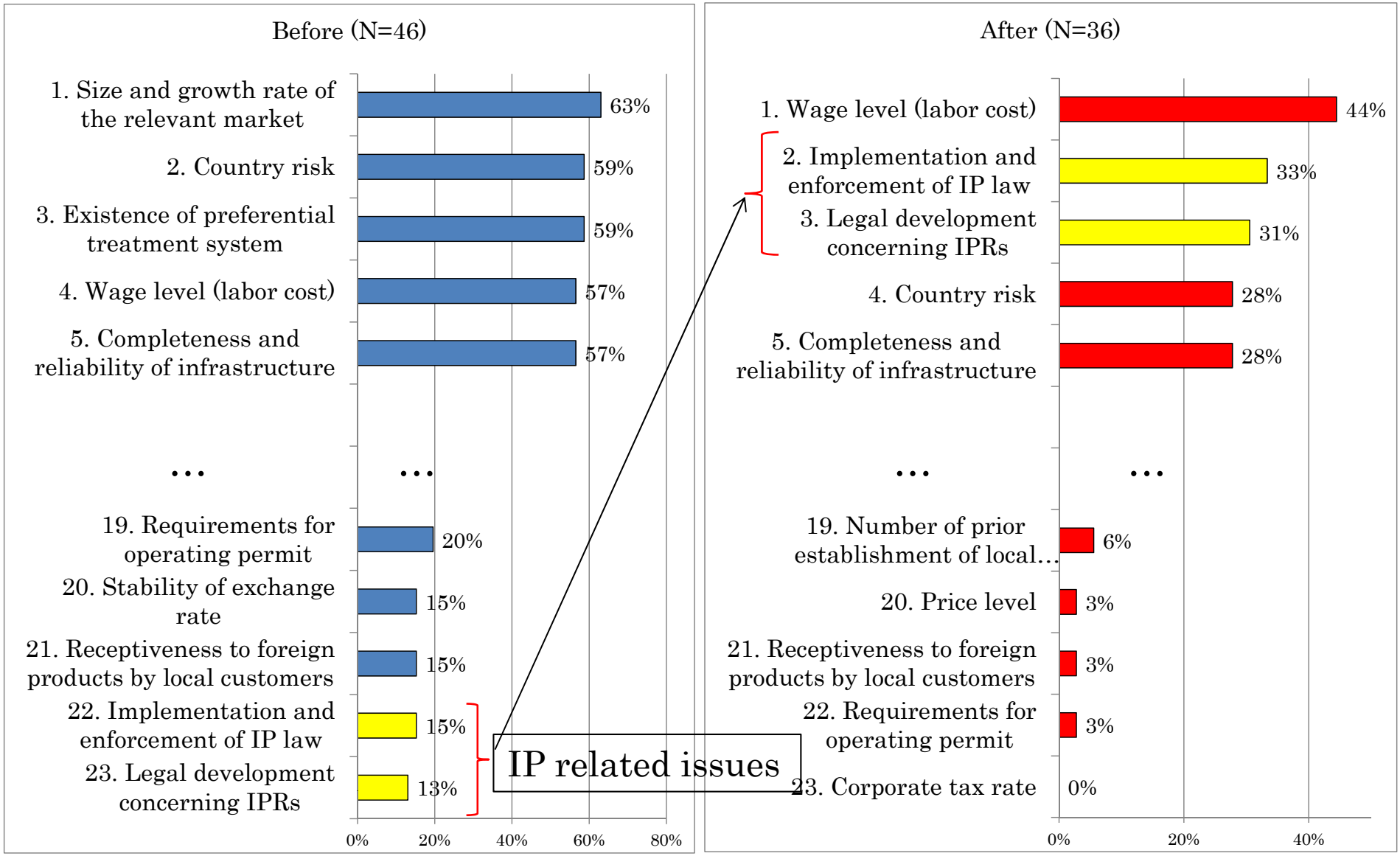
Data Source: "Overseas Activities of Japanese Companies," Toyo Keizai Inc.

Large presence of Japanese FDI in ASEAN



Data source: "ASEAN Investment Report 2013-2014" ASEAN Secretariat and UNCTAD

Issues facing the CN/JP/KR companies before and after expansion



ERIA Research Report (2015) "Reforming Intellectual Property Systems for Promoting Foreign Direct Investment in ASEAN"

Determinants of expansion and problems facing in ASEAN

According to ERIA's Study Project,

- Major determinants of expanding to ASEAN countries are the marketability and labor cost
- However, after establishing new subsidiaries in ASEAN countries, not a few Japanese companies are facing IP related problems

ERIA's Study Project

"Intellectual Property Policies for Promoting Foreign Direct Investment in ASEAN"

ERIA
(Economic Research Institute for ASEAN and East Asia)

- International organization established at the 3rd East Asia Summit in 2007
  - proposed by Japanese Ministry of Economy, Trade and Industry (METI) committing to contribute more than 10 billion yen (approx. 1.2 trillion USD) in 10 years
- Think tank like an East Asian OECD
  - Conducts researches and provides policy recommendations to stimulate economic growth, deepen regional integration, and strengthen partnerships in ASEAN and East Asia
  - Provide capacity building programs

Purpose of the project

- Identify the IP-related problems and challenges that the subsidiaries of multi-national corporations (MNCs) are facing in ASEAN countries
- Seek a solution to attract foreign direct investment (FDI)
- Evaluate how significant IP protection contributes to create employment and to promote technology transfer in ASEAN countries by increasing FDI

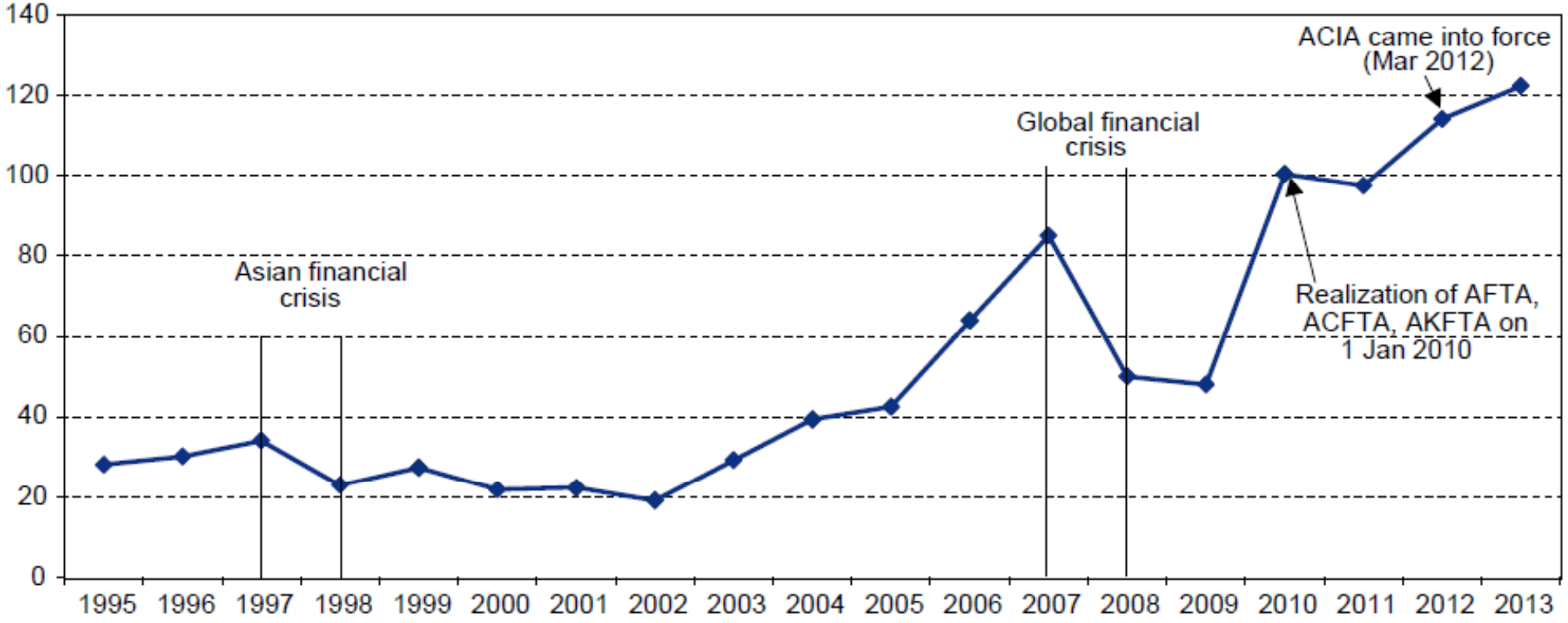
Background

- Continuation research project
  - First phase: Aug. 2013 – Jul. 2014
  - Second phase: May 2015 – Sep. 2016
- First phase
  - Pilot survey targeting the limited sample: 95 companies
    - Subsidiaries of MNCs (CN, JP, KR, US and EU) in ASEAN
  - Working group member
    - From 7 countries; CN, JP, KR, ID, SG, TH, and VN
- Second phase
  - Large scale questionnaire survey to conduct statistical analysis: over 1,000 responses (expected)
    - Subsidiaries of MNCs (CN, JP and KR) in ASEAN
  - Working group
    - From 9 countries; CN, JP, KR, ID, MY, PH, SG, TH and VN

Main results of the 1st phase project: Evidence from pilot survey

Background data

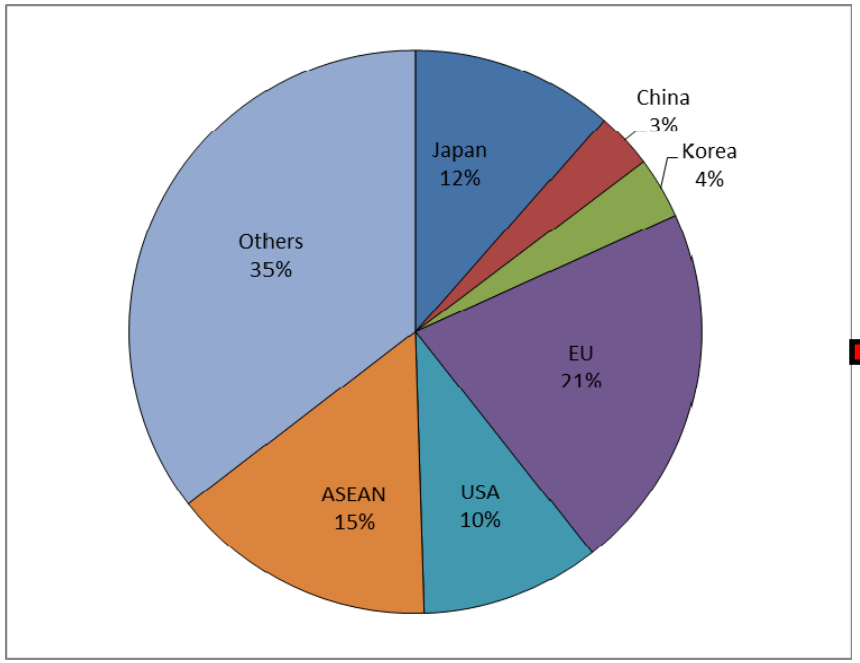
- Foreign direct investment (FDI) in ASEAN shows a significant increasing trend since 2003



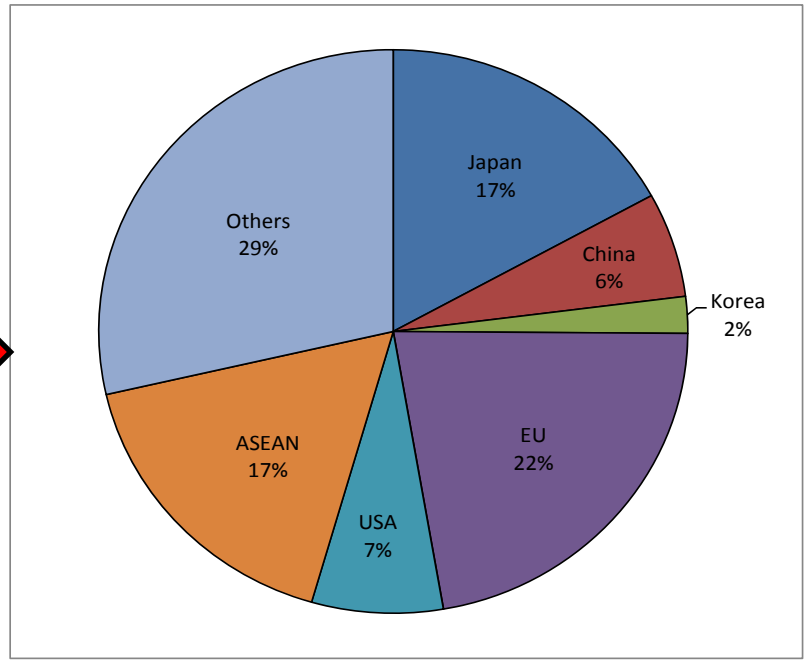
Source: Reproduced from "ASEAN Investment Report 2014" The ASEAN Secretariat

Presence of Asian countries in FDI

Share of FDI net inflows in ASEAN (2007-2009)



Share of FDI net inflows in ASEAN (2011-2013)



- Share of CN, JP and KR increased from 19% to 25% (accounts for a quarter of the total FDI investment in ASEAN)

Purpose (1st phase)

Pilot study

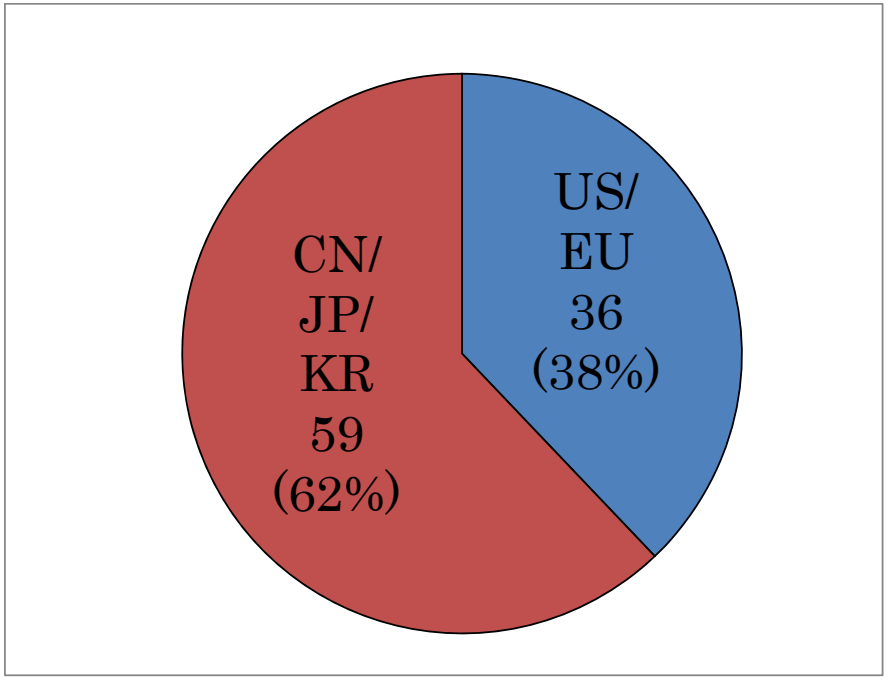
- to overview the IP-related problems and challenges that the subsidiaries of multi-national corporations (MNCs) are facing in ASEAN countries
- to provide some (preliminary) policy recommendations to attract more FDI

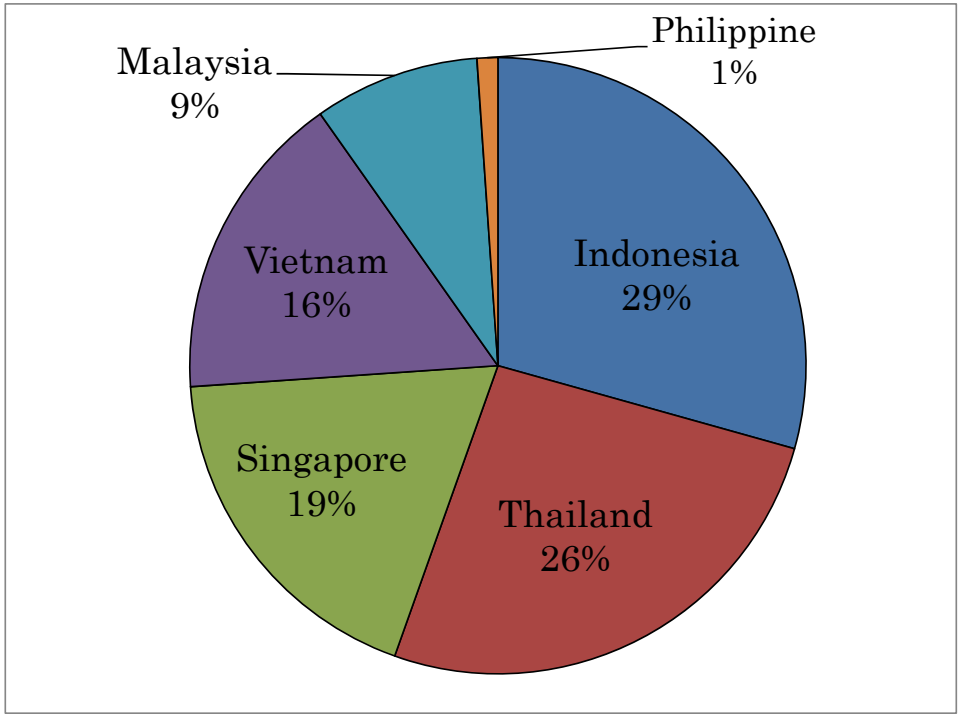
Research method

- Questionnaire survey (95 responses)
  - Targets
    - Multi-national corporations (CN, JP, KR, EU and US) located in ASEAN countries
  - Industries
    - Electric devices, transportation machines, chemicals, and food
  - Expected respondents
    - Manager of international business division or corporate planning, and the manager of IP division
- Interview survey (71 companies)
  - Reasons of the answers
  - Facing problems of IP systems in ASEAN countries

Sample

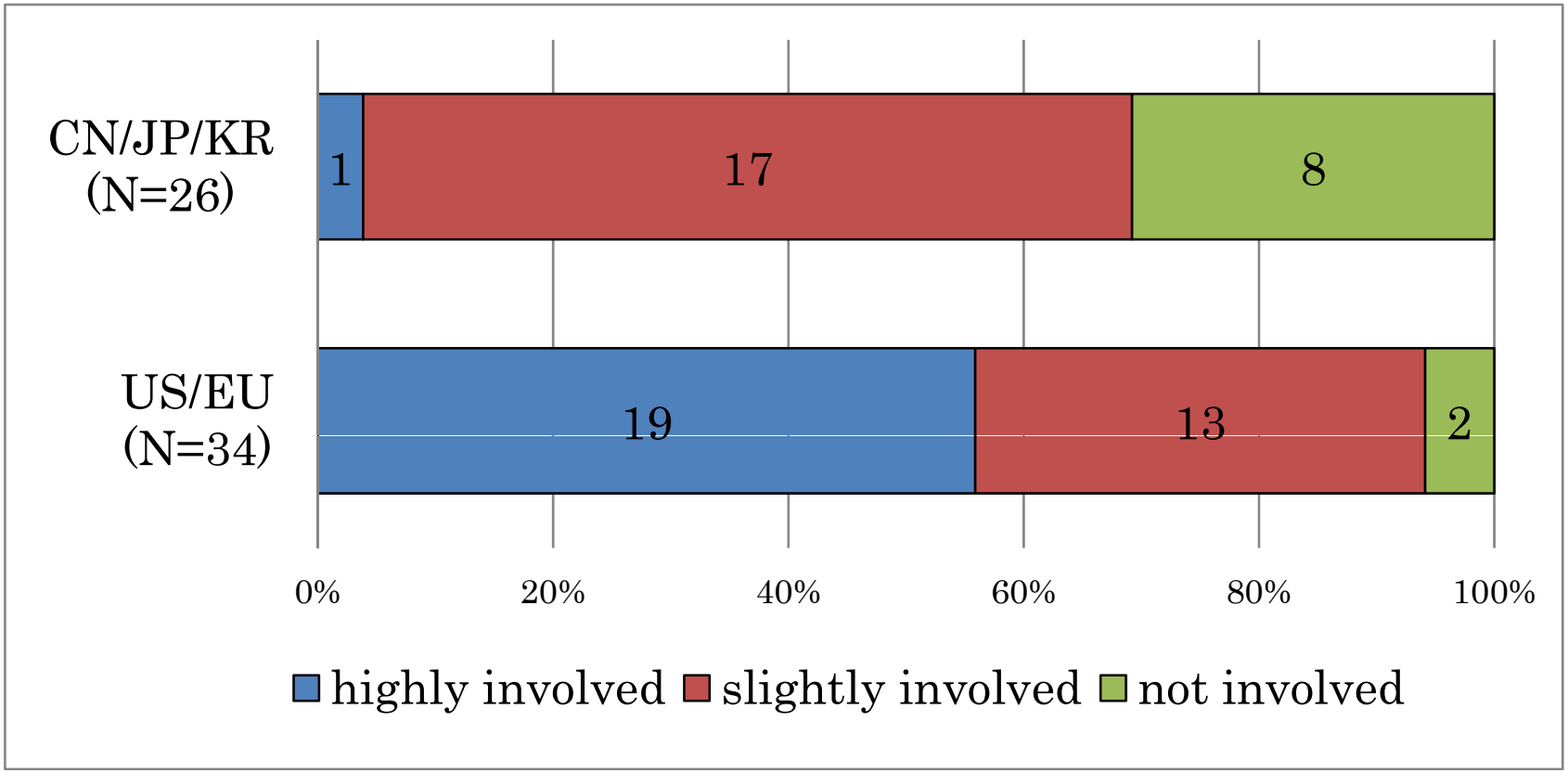
- 95 subsidiaries
  - 59 subsidiaries of Asian companies
    - 31 Japanese, 16 Chinese, and 17 Korean subsidiaries
  - 36 subsidiaries of Western companies
  - 27 subsidiaries in Indonesia, 17 in Singapore, 24 in Thailand, 15 in Vietnam, 8 in Malaysia, and 1 in Philippine



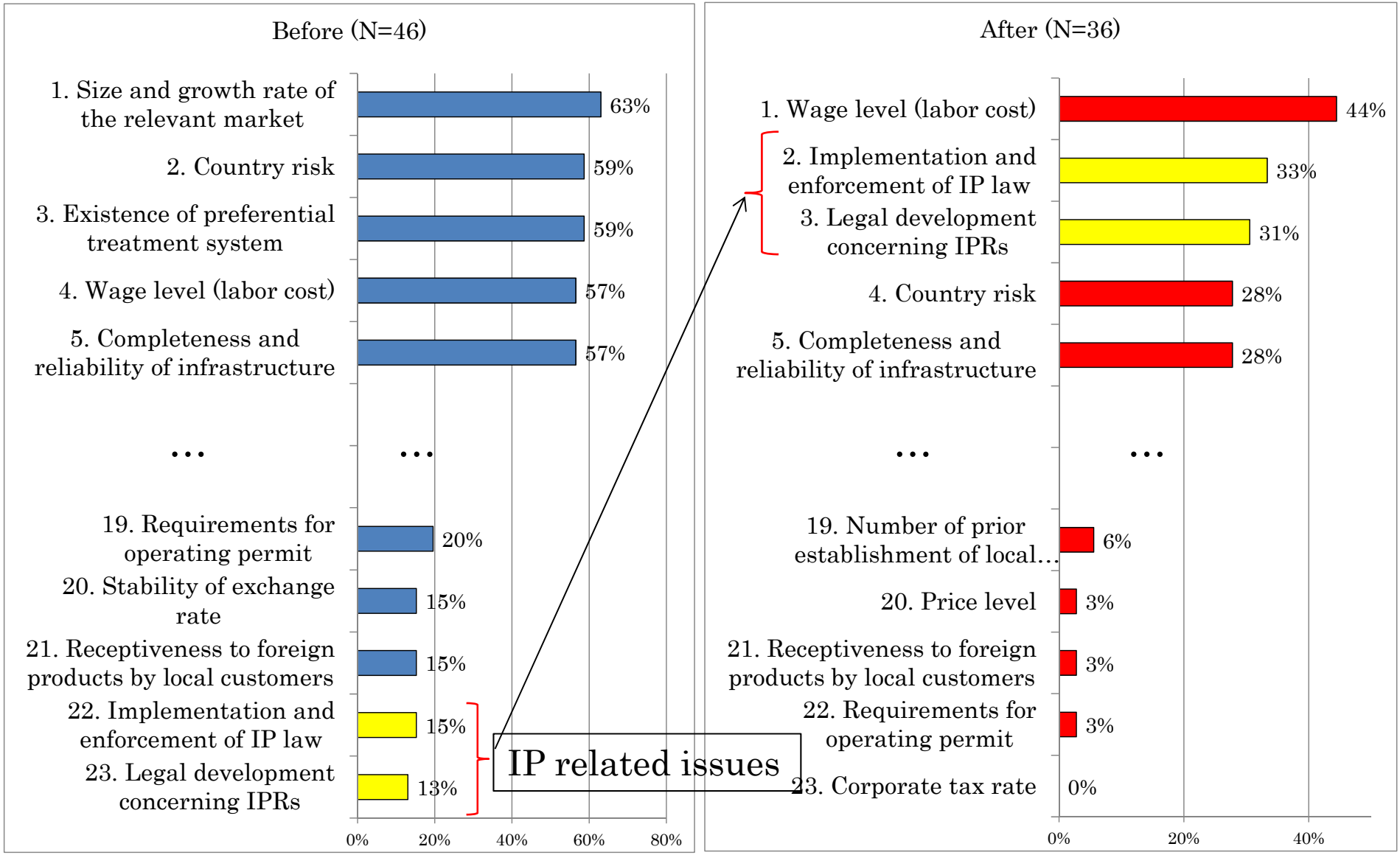


Involvement of IP sectors in the decision on FDI

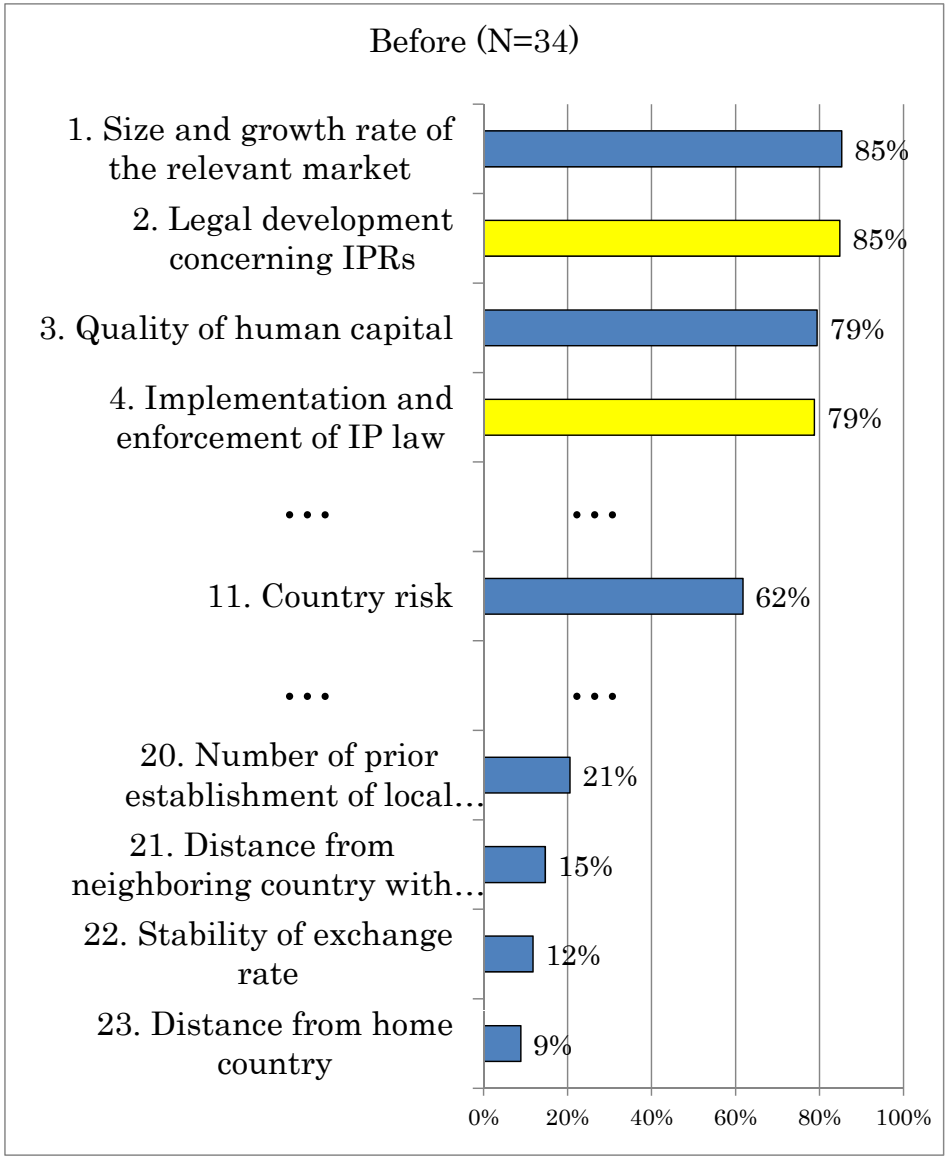
- Among the CN, JP and KR companies, only one company answered that IP sector is highly involved into the decision making on overseas expansion
- For 56% of US and EU companies, IP sectors are highly involved

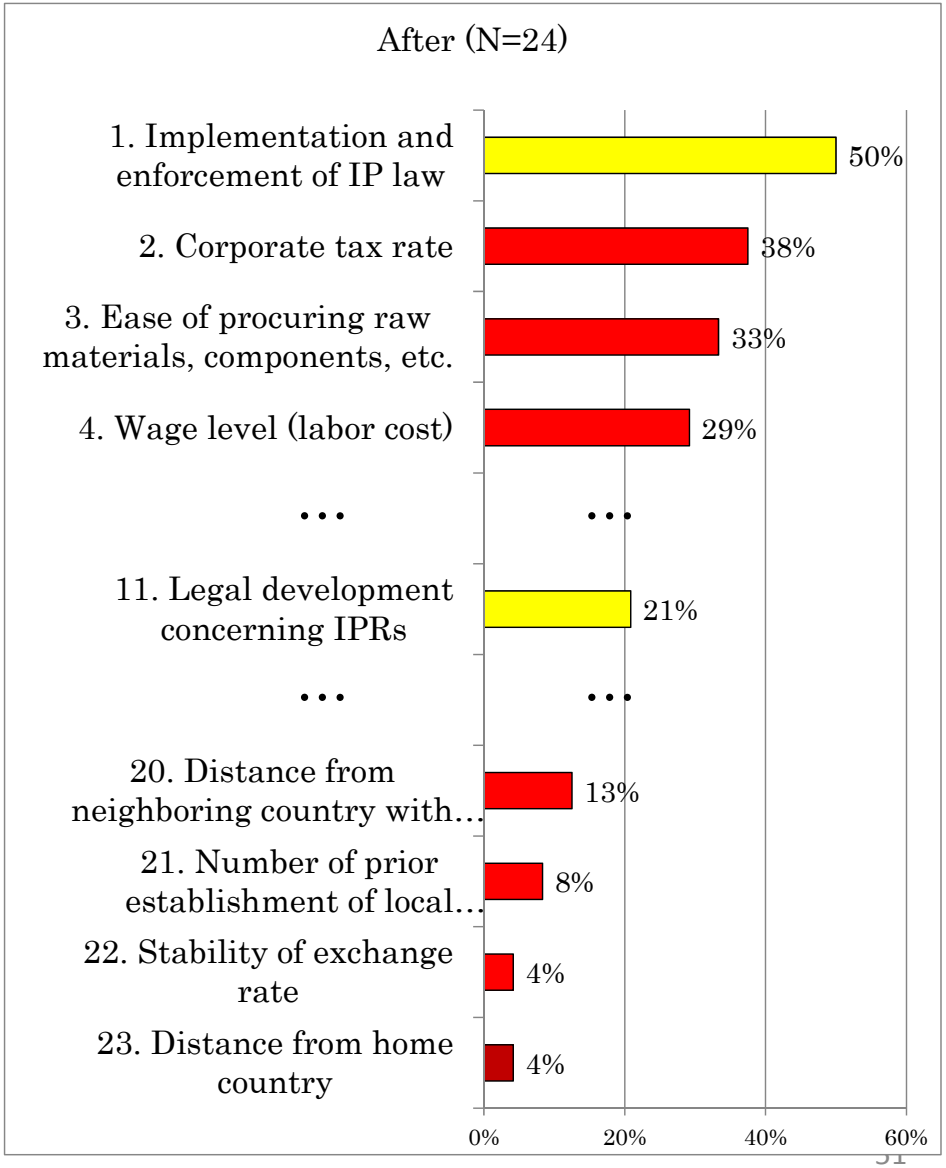


Issues facing the CN/JP/KR companies before and after expansion



Issues facing the EU/US companies before and after expansion

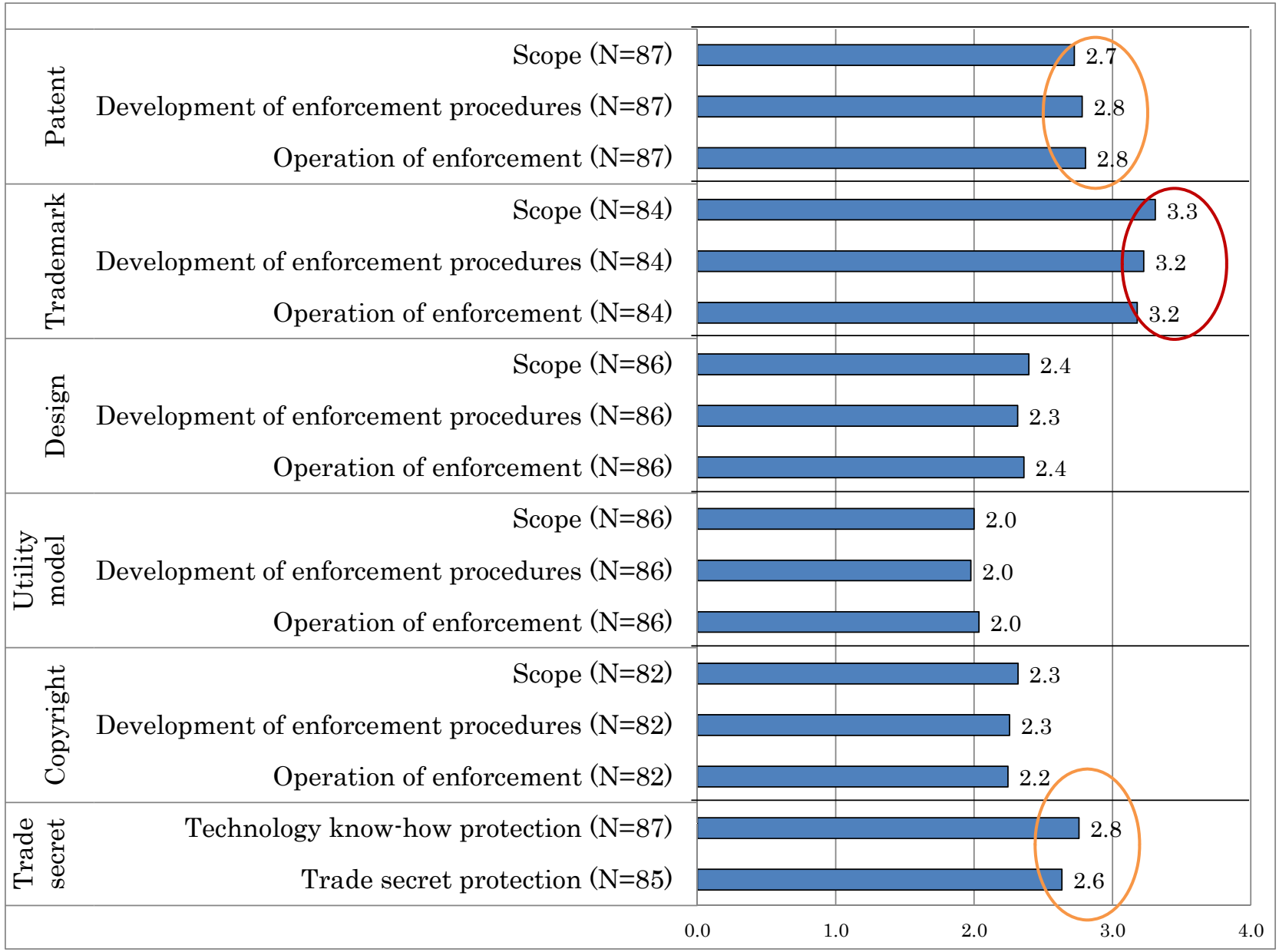




Issues facing: ex-ante vs. ex-post

- Most important determinants of overseas expansion is “Size and growth rate of the relevant market”
- Asian companies do not consider the IP related issues before the expansion, but recognize the problems of those issues after establishment of local subsidiaries
  - consistent with lower involvement of IP department
- For the western companies, the IP related issues are highly concerned both before and after expanding to ASEAN
  - consistent with higher involvement of IP department

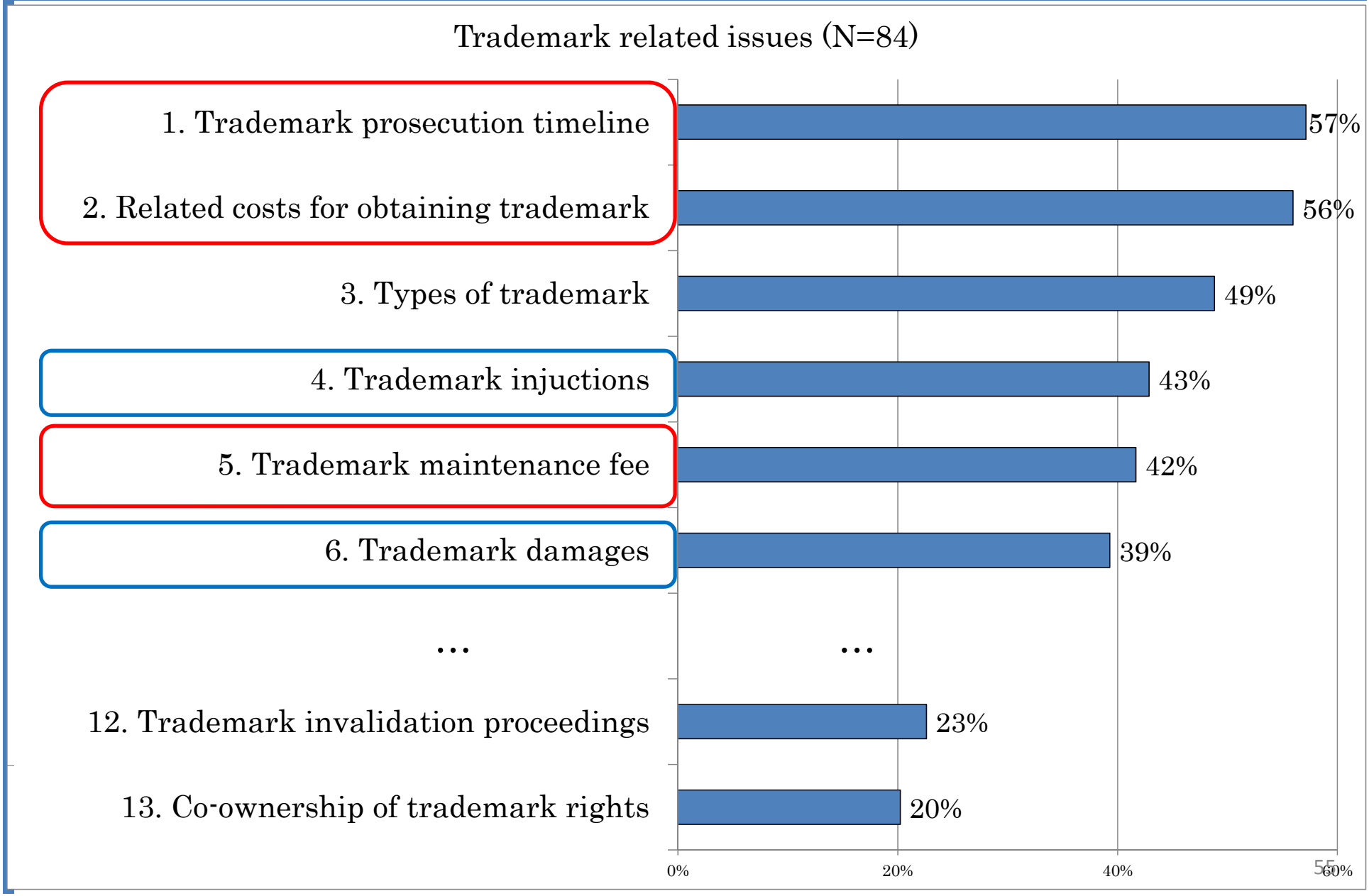
Considering factors by IPRs



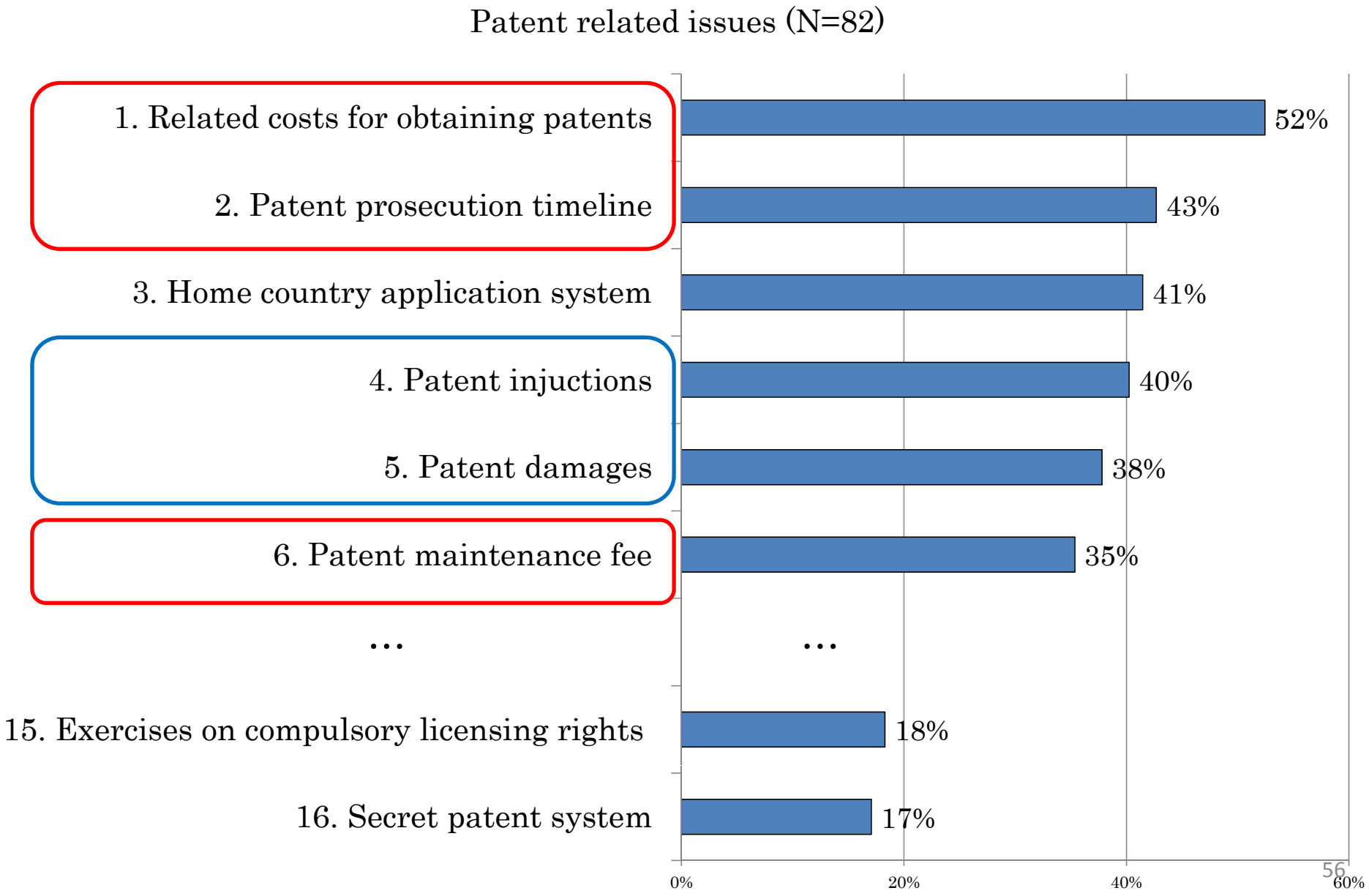
Considering factors by IPRs

- Trademark related issue is the highest concern of the MNCs in the decision on expanding to ASEAN countries
- Trade secret issue and Patent related issue have higher importance
  - Large concern on counterfeit goods for a sales base and on technology drain for a production base

Specific matters on trademark



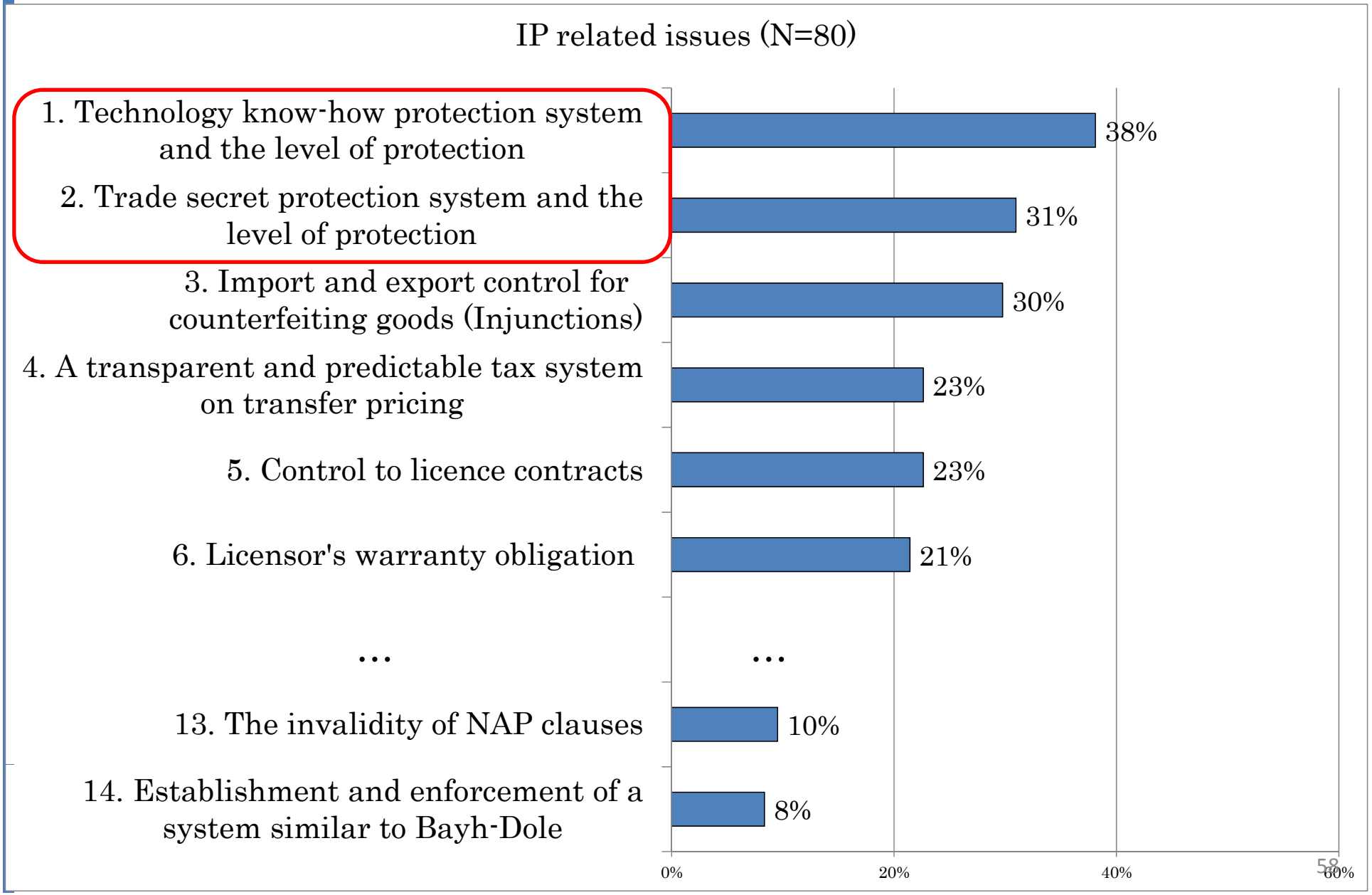
Specific matters on patent



Specific matters on Trademark and Patent

- As for Trademark and Patent related issues, examination duration and the cost for obtaining right are the common highly concerned problems
  - Some respondents are complaining to more than 10 years examination duration and higher cost including fee for local agent and translation fee
- Enforcement of an injunction is also an important issue
  - There is a case that infringers filed an usurped application

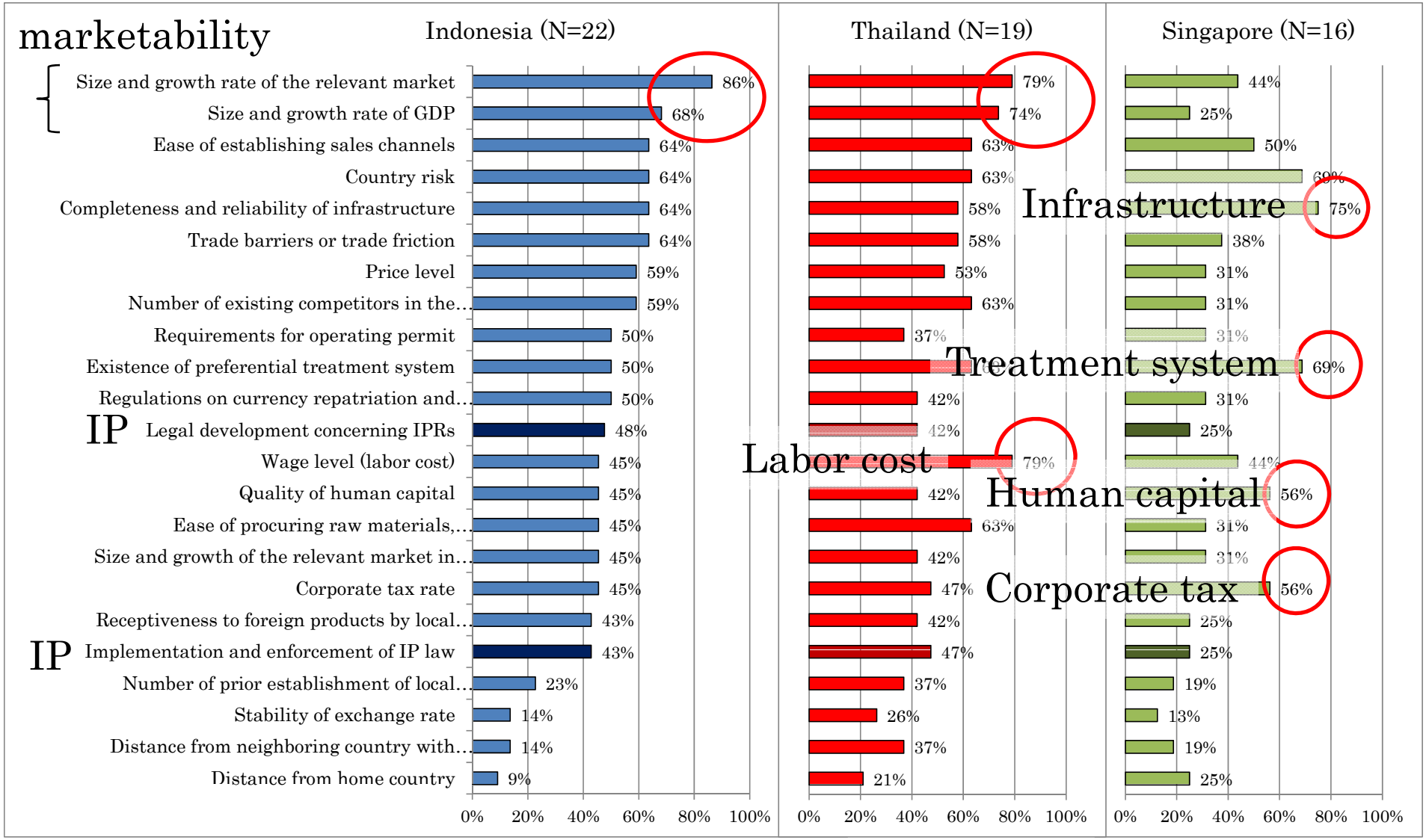
Specific matters on IP-related system



Specific matters on IP-related system

- Strength of technology know-how protection and trade secret protection is an important considering factors of MNCs
- “Import and export control for counterfeiting goods (Injunctions)” is also an important issue
- “Control to license contracts” and “Licensor's warranty obligation” show relatively high value
  - Importance of system design for ensuring a smooth license contract with local subsidiaries

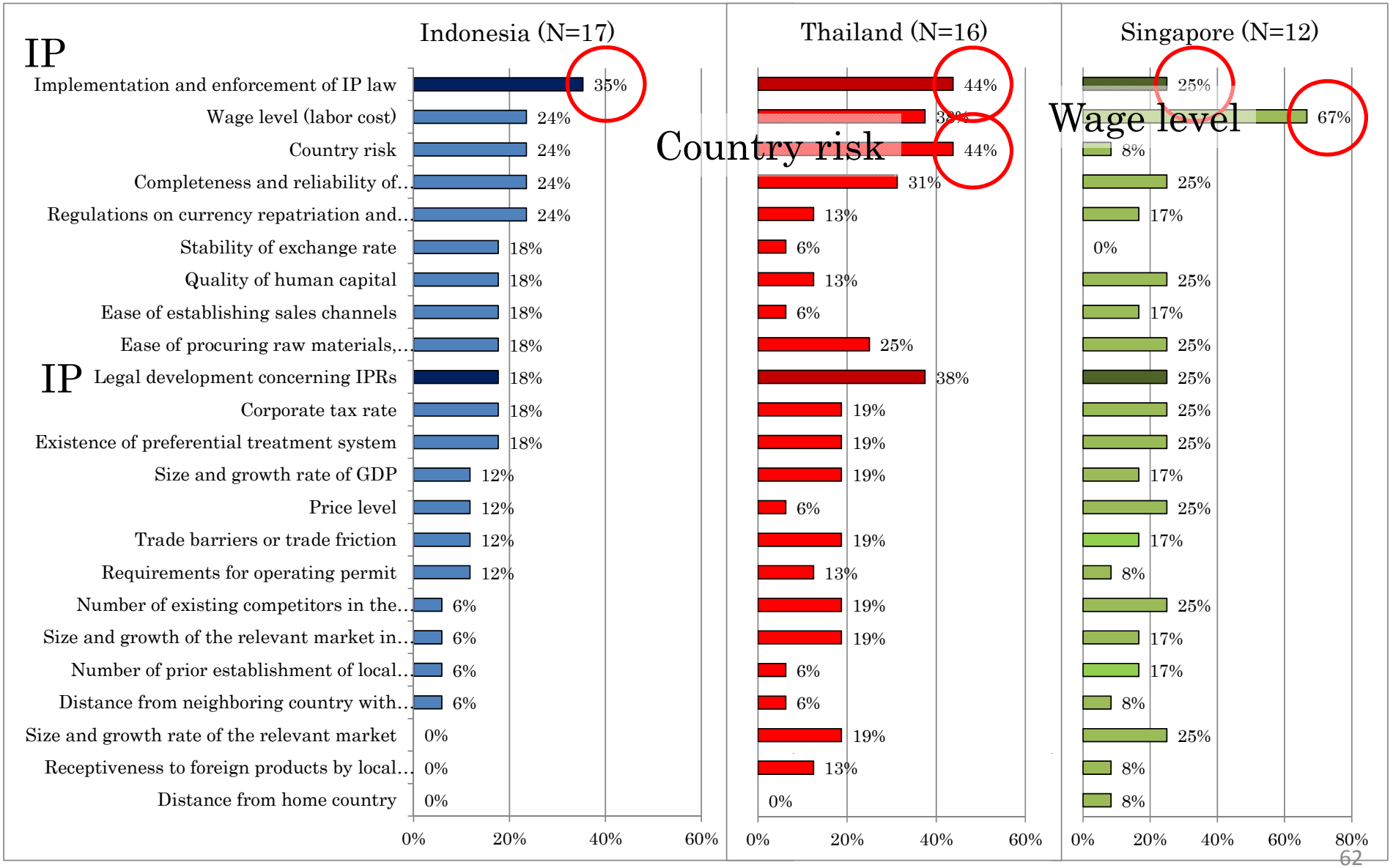
Difference of considering factors by host countries



Difference of considering factors by host countries

- Indonesia and Thailand have similar propensity, and firms focus much more on the marketability and the cost factors
- In each country IP related factors are not important determinants of overseas expansion
- Singapore has less general problems compared to Indonesia and Thailand
  - In Singapore, business environment such as the reliability of infrastructure and the existence of preferential treatment system, and R&D environment such as the quality of human capital are recognized as more important determinants

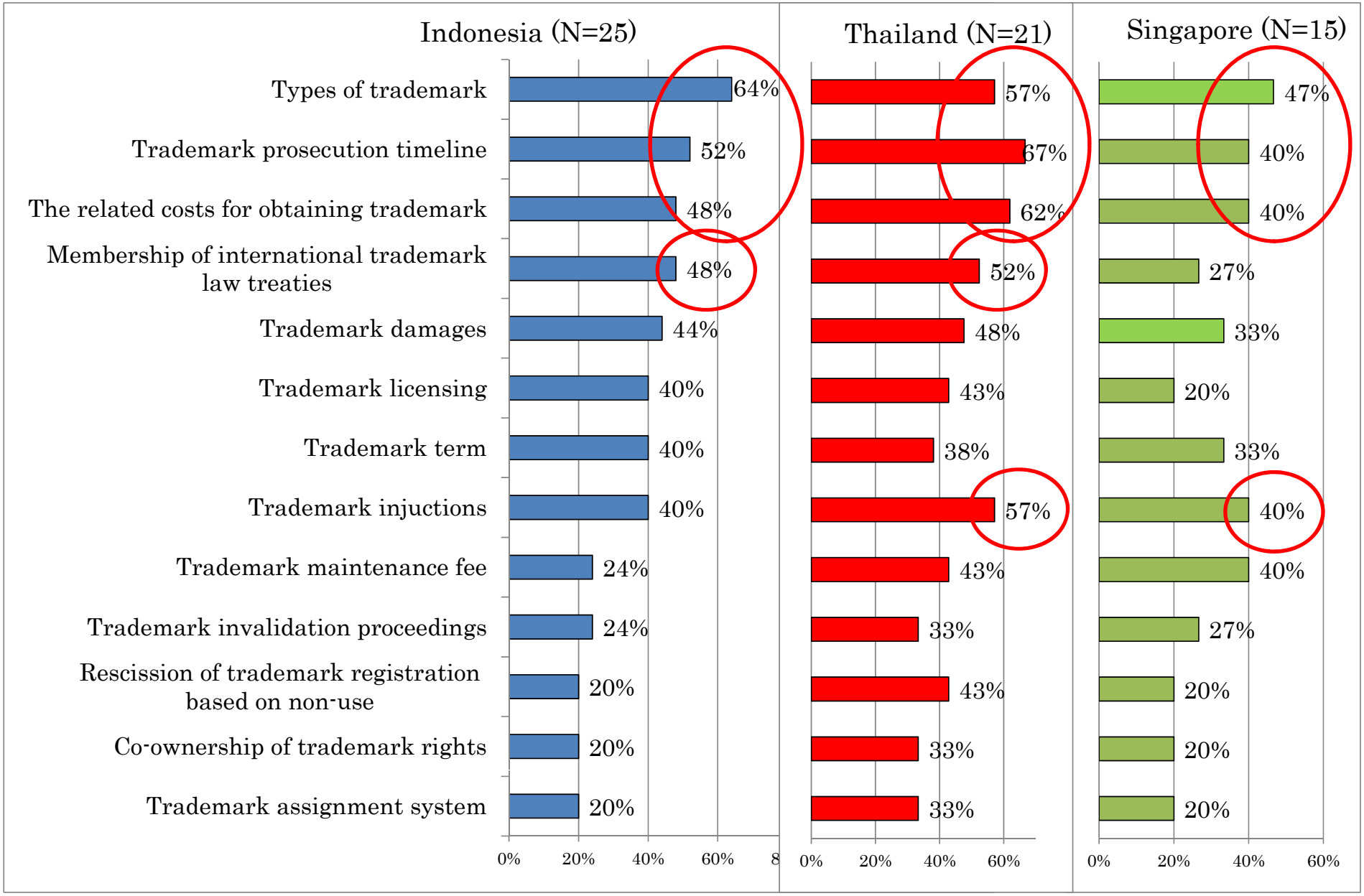
Difference of facing problems by host countries



Difference of facing problems by host countries

- In Indonesia and Thailand the implementation and enforcement of IP low is the largest problem
- In Singapore, there are quite a few subsidiaries facing the IP related issues though the most important matter is wage level

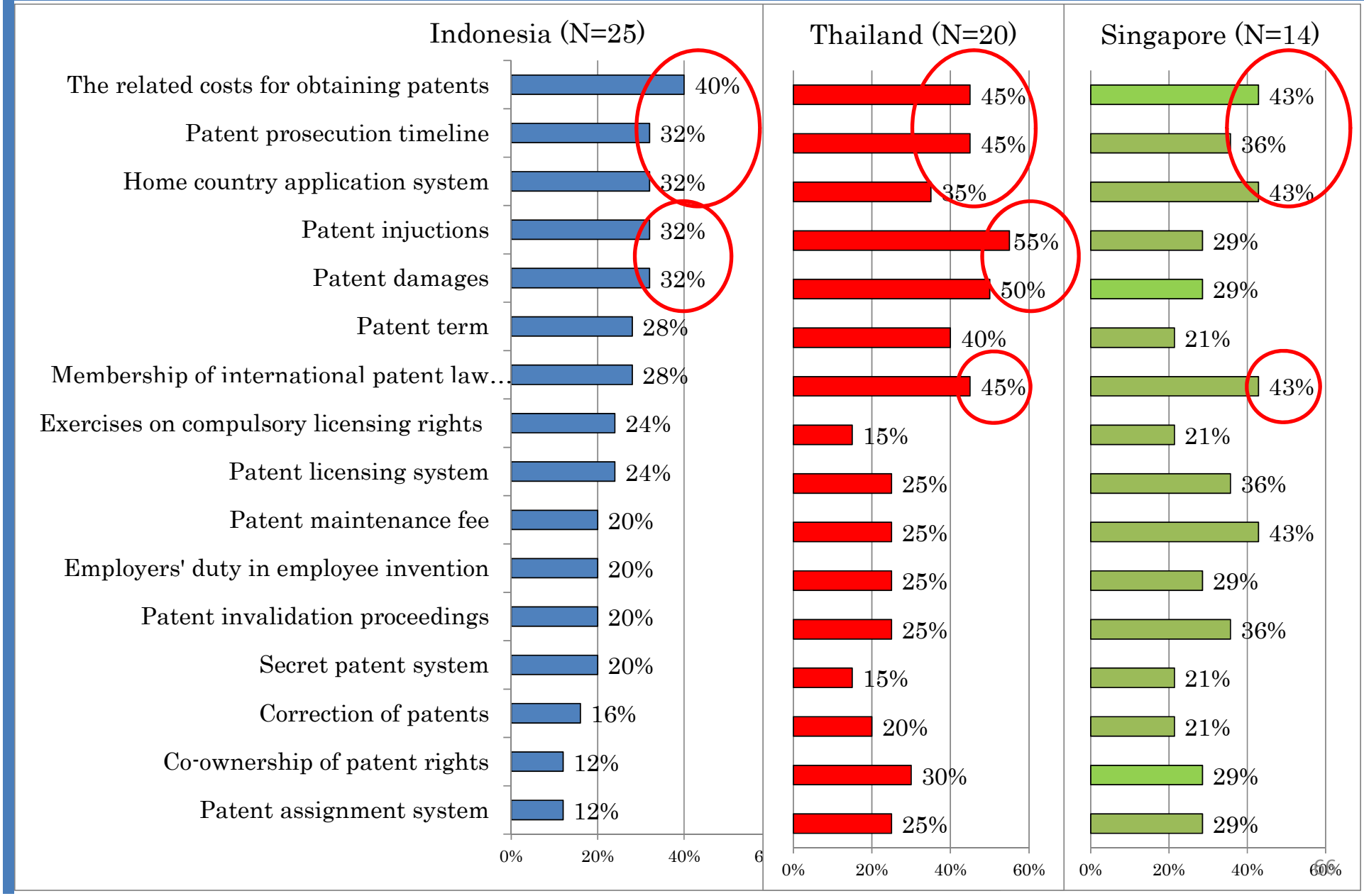
Specific matters on Trademark by host countries



Specific matters on Trademark by host countries

- Consideration on trademark-specific issues shows similar propensity among three host countries
- Higher importance on the types of trademark, the examination duration, the cost for obtaining trademarks
  - pending period and cost are the common problems of trademark system among the host countries
- Trademark injunctions and damages are also recognized as important issues in the host countries
- In Indonesia and Thailand, membership of international trademark law treaties, Madrid protocol, is relatively larger considering factors

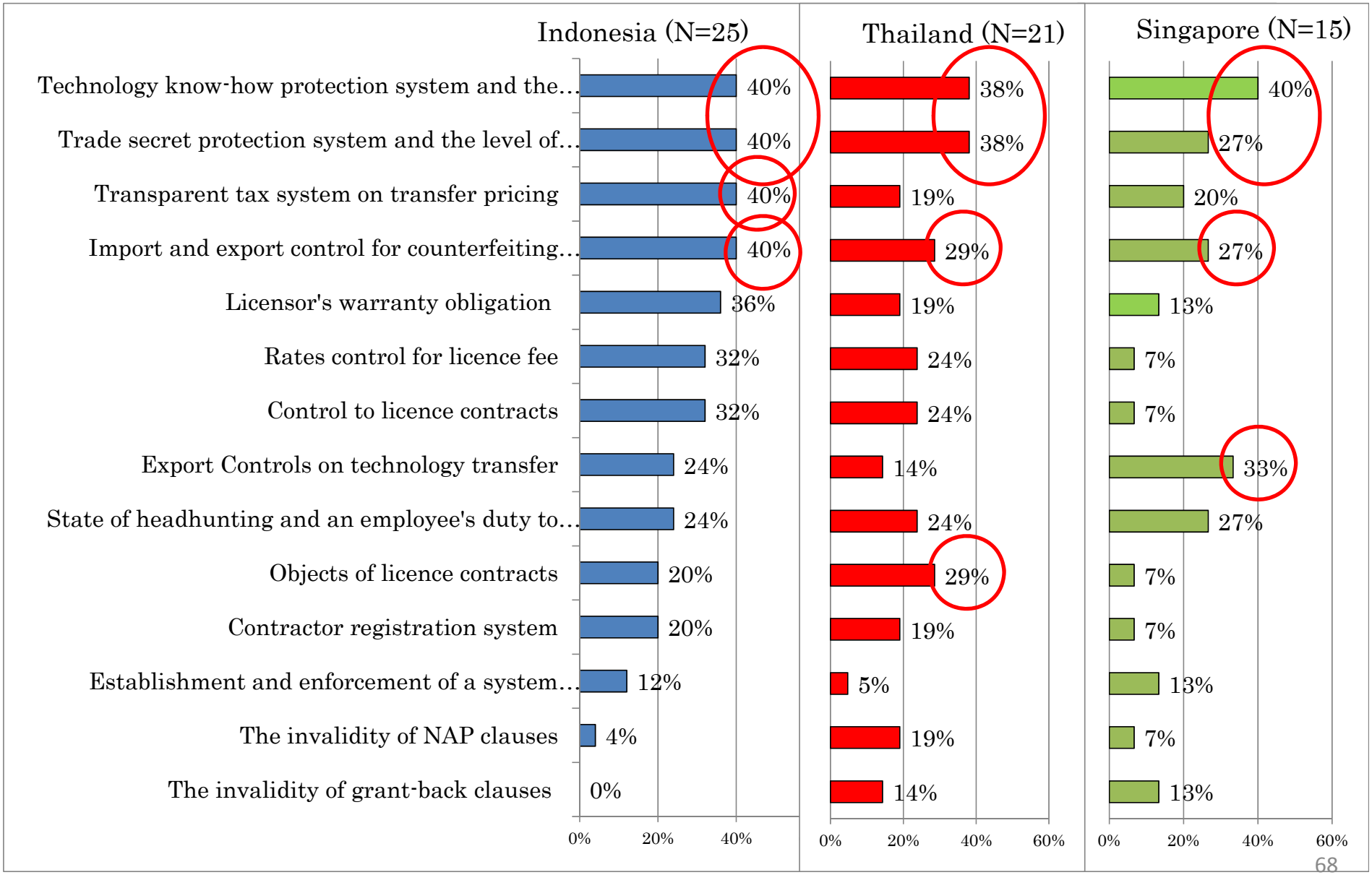
Specific matters on Patent by host countries



Specific matters on Patent by host countries

- Cost for obtaining patents and examination duration are the common considering factors in each host country
- Home country application system is also a significant obstacles in each host countries
- In Indonesia and Thailand, patent injunction and damages are relatively larger considering factors
- In Thailand and Singapore, membership of international patent law are highly concerned

Specific matters on IP-related system

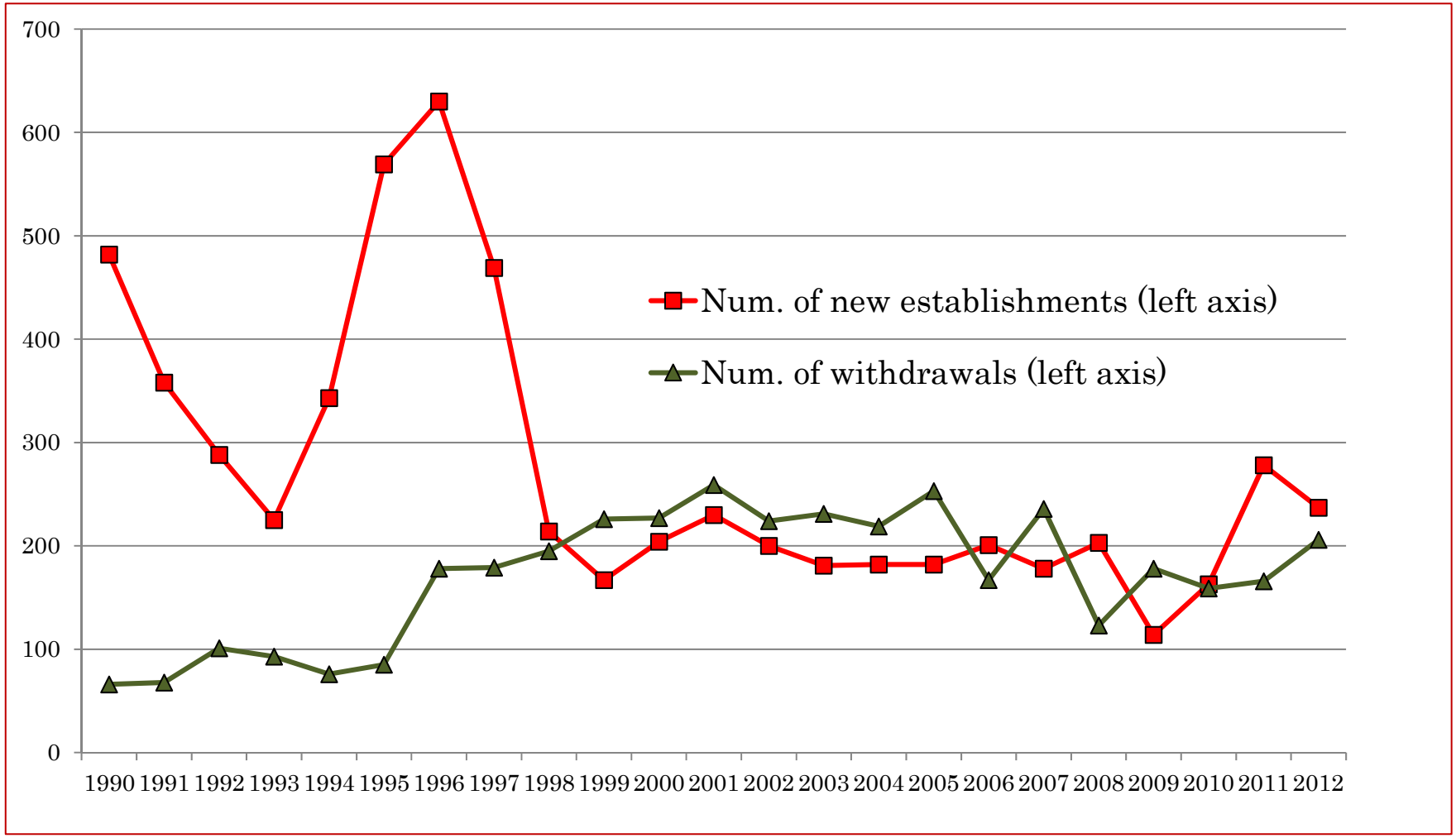


Specific matters on IP-related system

- Technology knowhow protection system and trade secret protection system are the largest common considering factors in each host countries
- Import and export control for counterfeiting goods is commonly concerned among host countries
- In Indonesia, compared to the other countries, “Transparent and predictable tax system on transfer pricing” have larger importance.
- In Thailand, firms put a higher value on “Objects of license contract”
- In Singapore, “Export controls on technology transfer” is the second largest issues

Relation between reshoring and technology protection: Rough sketch

Trend of new establishments and withdrawals in ASEAN



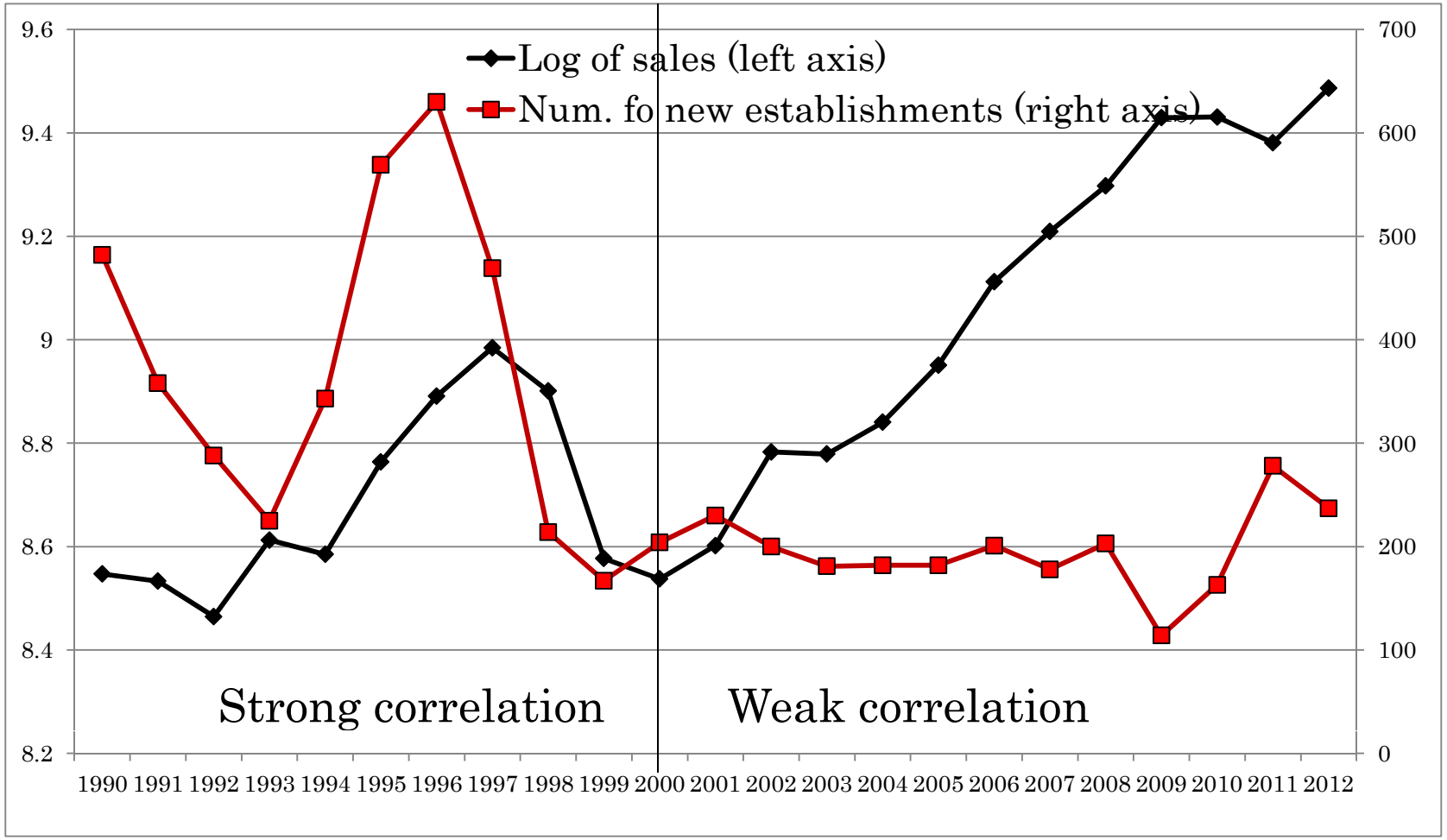
data source: "Overseas Activities of Japanese Companies," Toyo Keizai Inc.

*The data source includes the detailed information on the overseas subsidiaries of Japanese firms, covering about 20 to 30 thousands subsidiaries every year since 1990.

Trend of new establishments and withdrawals in ASEAN

- Especially in the 1990s, the number of new establishments is quite larger than that of withdrawals
- However, the number of withdrawals has increased during 1990s and it exceeded the number of establishments in 1999
- Since 2000 the gap of the numbers has been considerably narrowed
  - One of the reasons of this decreasing difference might be the increasing concern on the risk of technology drain, while the most important factor should be the deterioration of business environment

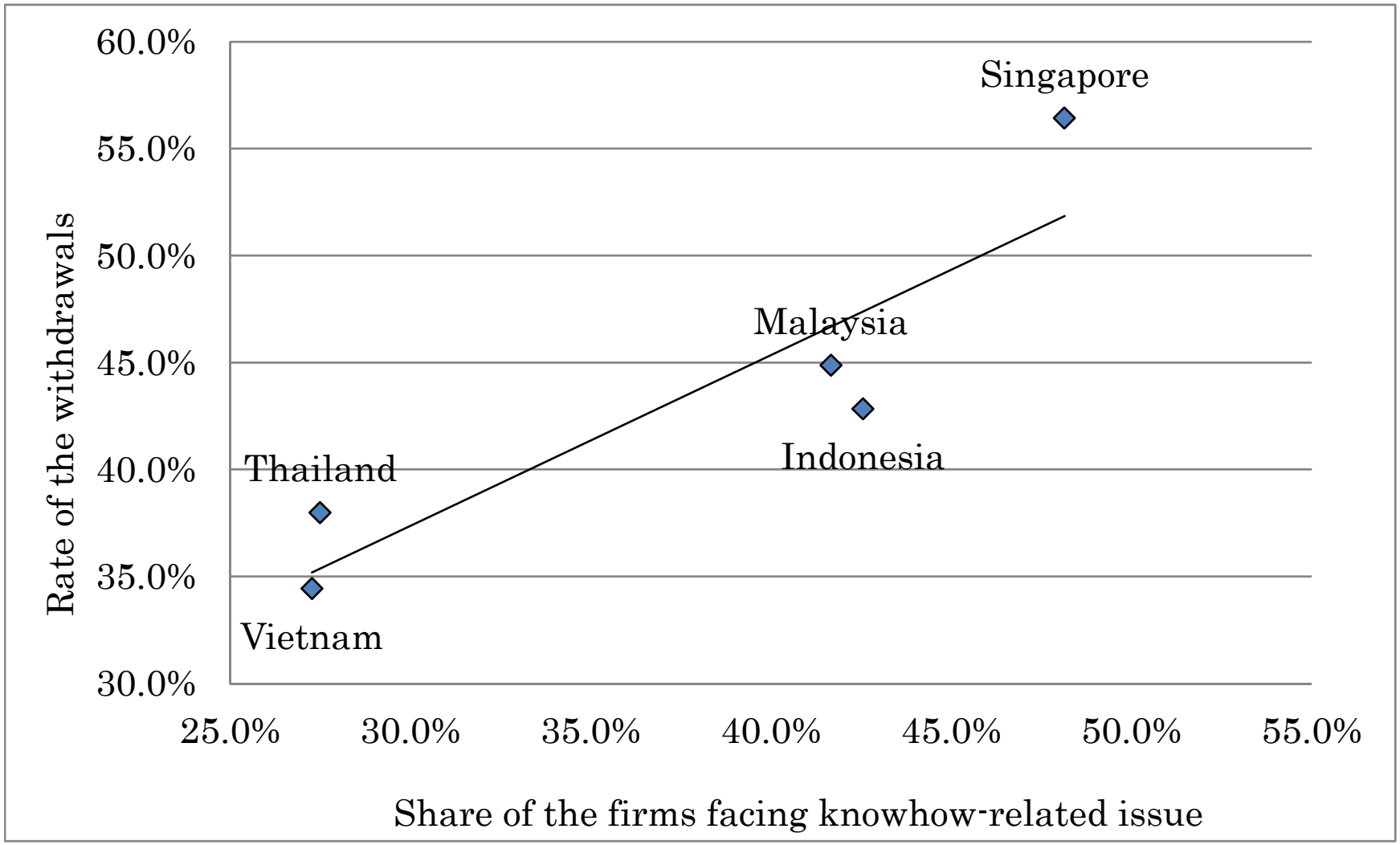
Average sales of the existing subsidiaries in ASEAN



Average sales of the existing subsidiaries in ASEAN

- In the 1990s the sales and the number of overseas expansion have strong correlation
  - Considering the time lag between the date of decision-making and the date of actual expansion, this can suggest that the marketability significantly affects the firm's decision on overseas expansion in 1990s
- Number of new establishments, however, does not increase as much as the sales growth after 2000
  - Importance of other determinants such as labor cost, country risk, or risk of technology drain has been increasing after 2000
  - Japanese firms are highly concerned about trade secret related issues and trademark related issues

Correlation between the withdrawal rate and importance of knowhow-related issue



Correlation between the withdrawal rate and importance of knowhow-related issue

- Withdrawal rate and the share of firms facing know-how related issue have a positive correlation
  - more firms decide to return to home country when the firms are more concerned about technology drain
- Small sample and simple comparison capture the overall trend and other causality
  - Necessity of an econometric analysis to identify the true causality and pure effect of the risk of technology drain
- But can provide a rough sketch of the relation between IP related issues and FDI
  - it is important for ASEAN countries to enhance the protection of IP, especially in terms of trademark and trade secret, so that they can prevent the reshoring of foreign companies

Summary and supportive evidence from interview survey

Overall description

- IP related issues are not necessarily the critical factors before expanding to ASEAN countries, but they are perceived as major problems after establishing new subsidiaries
  - especially for Asian (CN, JP and KR companies)
- Firms put a great importance on the issues related to “trademark”, “trade secret” and “patent”

Problems and challenges facing MNCs

1. Cost for obtaining IPRs and examination duration are the common and largest concern in ASEAN countries
   - Harmonization of IP examination systems is important for most of MNCs to decide to expand to ASEAN countries
2. Injunctions and damages in trademark and patent are other important considering factors
3. Inconsistency in IP systems is an significant obstacle for many MNCs to expand to ASEAN
4. Lack of a well-structured IP related information system is a hidden critical problem concerned by most of the MNC

1. "Cost is too high and examination duration is too long"

- Payment for local attorney and for translation are burden to MNCs to obtain IPRS
- Too long examination duration of IPRs is also a serious concern for most of MNCs
  - *"We should wait for the decision of USPTO because examiners seems to wait for it. We filed 25 patent applications with local Patent Office during 2005 and 2006, but only two decisions were made up to 2014."*
  - *"We could not get IPR to protect our business even we have applied it long ago. Such situation hinders us to expand business ASEAN no more"*

2. “Enforcement is too weak”

- Serious influence of counterfeit products
  - *“Even in the case of apparent misappropriated application, the burden of evidence is on our side. We have to pay considerable fee for lawsuit and for verification. However, we could not delete misappropriated trademark applications. We cannot expect the function of trademark system in this country.”*
  - *“Even if we find the relevant IPR system to solve the IP-related problems, we often notice that the system is not actually operated and enforced. In such situation, we cannot do anything but are disappointed.”*
  - *“Recent import channel of counterfeiting products is complicated. Sometimes goods and trademarks are entered separately into a country, then they are combined and sold as a genuine product.”*

3. "Inconsistency in IP system is a significant obstacle to seek for IPRs"

- Harmonization of IPR examination system is quite important
  - *"Among ASEAN countries, limited countries are the members of Madid Protocol. Therefore we have to apply our trademark registration separately in other ASEAN countries."*
  - *"As for design protection, limited ASEAN countries are member of Hague Agreement Concerning the International Registration of Industrial Designs"*

4. "IPR Information is quite insufficient"

- Many subsidiaries have a difficulty to get sufficient information regarding IP-related systems and paradigms especially in English
  - *"It is not clear about the standard of IPR examination, the procedure of IPR examination, and the current situation for a specific IPR application."*
- Lack of information is partially caused by the lack of knowledge of local agents
  - *"Local agents are not qualified to provide relevant legal services because of lack of IPR special knowledge."*

Summary:
Problems and challenge of IP systems in each country

Singapore

- No major problem with the IP system except relatively weak enforcement system especially border control
- Employer's duty in employee's invention is considered more than other ASEAN countries
  - One of the reason would be a recent increase in the establishments of R&D basement of MNCs
    - larger number of IPR specialist
    - Larger number of talented researchers and engineers
- However companies have less incentives to file patents because of small market

➢ Singapore has potential to become IP hub in ASEAN countries

Thailand

- Higher cost and too long examination duration to get IPRs are concerned more than other ASEAN countries
  - Some companies are complaining to more than 10 years examination duration and higher cost including fee for local agent and translation fee
- Patent injunction and patent damages are also highly concerned more than other ASEAN countries

➢ Improvement of IPR system especially examination capability is strongly desired to attract sustainable direct investment

Indonesia

- Inconsistency in the law enforcements, insufficient information on IPR system are important issues
  - Not a few companies pointed out that bribery practices increases the uncertainty of IPR system
- Trade secret-related issues are concerned more than in other ASEAN countries
- Large translation cost due to requirement to create an international contract in the local language is a significant issue

➢ Effort on harmonization of IP system including trade secret protection and on construction of information infrastructure are strongly desired

Vietnam

- Pending period and cost for obtaining IPRs are concerned similarly to other ASEAN countries
  - Some of the MNC's relatively highly evaluate the IPR system and enforcement of Vietnam
- Higher translation cost due to the requirement to register the license contract in the local language is a large obstacle to operate business

➢ Improvement of examination capability and harmonization of IP system would attract more FDI

Policy recommendations

Policy Recommendations

Following policies would contribute to attract FDI

1. Harmonization of IPR system
2. Strengthening the enforcement of IPRs and reducing uncertainty about the process and result of enforcement
3. Reducing the cost for obtaining IPRs and improving the examination capability
4. Establishing a well-structured information system and services for searching IPRs and for referring IP related procedures
5. Enhancing the awareness and understanding on IPRs

1. Harmonization of IPR system

- It may be unrealistic to unify all of ASEAN systems because of the large disparity in each country, but is possible by proceeding gradual harmonization of options of each system
  - Joining some of important international treaties such as Madrid Protocol and Hague Agreement Concerning the International Registration of Industrial Designs.

2. effective enforcement

- Criminal sanction as well as civil sanction is effective to prevent willful counterfeiting
  - Rigorous custom controls and strong police power should contribute to prevent IPR infringement and piracy
- Establish a special organization with skilled professionals
- Advanced countries should support to construct reliable IPR system and enforcement in ASEAN

3. Reducing the cost and pending period for obtaining IPRs

- Accept an application written in English, and promote competition between local agents
  - Translation fee and fee paid to local agents are the significant concern of MNCs
- Promoting ASEAN Patent Examination Co-operation (ASPEC) which is the regional patent work-sharing program among 9 ASEAN countries
  - This program is not well known
- Improving examination capability through the examination cooperation and personnel exchange with other Offices (such as USPTO, EPO, JPO, KIPO and SIPO)
  - Harmonization of criteria of examination

4. Well-structured information system

- Provide high quality information about the standard of IPR examination, the procedure of obtaining IPR, and the current status of applications with proper timing
- Advanced countries should support to establish reliable IPR information system in ASEAN

5. Enhancing the awareness on IPRs

- Lack of information is partially caused by the lack of knowledge about IPR of local agents
- Professional human resource development by the government
  - provide appropriate education and trainings to legal professionals responsible for IP so that they can provide desired legal services
- Provide education to increase public awareness continuously, while it should take considerable time to be effective

Proposal of
the 2nd phase project

FDI contributes job creation?

- FDI can imply the deprivation of able workers of local ASEAN companies
  - When the subsidiaries of MNCs hire the workers, most part of those workers should come from the local ASEAN companies
- An attraction of FDI can have a negative impact on the productivity of local ASEAN companies
- However, naturally, MNCs' hiring activity should eventually contribute to the growth of ASEAN countries, since it improves the quality of human capital and has spillover effect and brain circulation effect

Purpose of 2nd phase project (1)

Conducting a large scale survey, we will

1. confirm the results of pilot survey in the 1st phase project and see the differences by industry and activity
   - identify IP-related problems and challenges facing MNCs in ASEAN countries
   - investigate the desirable level of examination duration and IP-related cost
   - analyze whether the effect of IPR protection varies across IPRs depending on the subsidiary's industry and activity (sales, manufacturing or R&D)

Purpose of 2nd phase project (2)

2. evaluate how significant IP protection attracts FDA into ASEAN countries
   - examine the effects of reinforcement of IP system on the FDI decisions and the appropriability of the subsidiaries
3. analyze whether the IP protection actually creates employment and helps promoting the transfer of technological knowledge from MNCs to ASEAN companies
   - investigate the impact of strengthening IP protection on job creation and technology spillover through FDI

Expected results and Policy implications

- Expected results
  - Long examination duration, higher cost of obtaining IPRs, inconsistency in IP system and weak enforcement are the problems to be solved to attract more FDI
  - Strengthening IP protection actually contributes to create employment and to promote technology transfer through FDI

- Policy implications
  - Improvement of examination capability
    - Cooperation with other IP offices
    - Introduction of accelerated examination system
  - Harmonization of IPR system
    - Joining member of Madrid protocol
  - Reduction of the cost for obtaining IPRs
    - Promoting competition between local agents
  - Electronization of IPR procedures

Thank you.

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