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**“Mapping East Asia Competitiveness
in Monetary and Real Sector”**

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I. INTRODUCTION

1.1. Background

For several decades East Asian¹ countries have amazed the world through its growth performance, shown by its economic openness (including high level of trade and Foreign Direct Investment inflow) and its macroeconomic performance. As a result, despite of the economic crisis in mid 1997-1998, East Asia has continuously increased its role in the world economy.

Nowadays, Japan, China, South Korea, and ASEAN 5 countries have become major trading partners for the rest of the world (especially US, European Union (EU)). Furthermore, besides increasing role in trade with other countries across the region, economic activities relationship among East Asian countries it self has been closer. One of the proofs given by the formation of AFTA (ASEAN Free Trade Area), Japan-Singapore Economic Partnership Agreement (JSEPA) in 2002 and other Free Trade Area (FTA) between China and Hong Kong.

With the addition of regional and similar custom background, the closer relationship among East Asian countries and its increasing role in the world have created an idea of East Asian Union (EAU). Moreover in the EAU, the existence of the region unification is argued to create prevention for crisis recurrence, better management for crisis whenever it occurs, and an influence to global financial environment (Sussangkarn and Vichyanond, 2006). The idea of EAU even finds more support when EU countries with its Euro established.

The idea of EAU has some obstacles to be realized. One of the problems is the different stages of economic development among countries (especially related with the impact from mid 1997-1998 East Asian crises); significant obstacles such Japan and China duopoly of regional leadership; as well as different competitiveness level among productions in each countries. The truth draws a more nuanced picture as the region encompasses a large range of competitiveness performances, from highly competitive

¹ According to the map, regionally, East Asian countries consists of South East Asian countries (Indonesia, Malaysia, Singapore, Thailand, the Philippines, Brunei Darussalam, Myanmar, Laos, Vietnam, and Cambodia) and countries such Japan, South Korea, North Korea, China (including Hong Kong and Taiwan), Macau, and Mongolia. In this proposed research East Asian countries includes: **ASEAN 6** countries (Indonesia, Malaysia, Singapore, Thailand, Philippines, and Brunei Darussalam) plus Japan, China, and South Korea. The reason behind the used of these countries is data availability. However, in addition, in this research additional analysis will also conduct with the inclusion of other countries: Myanmar, Laos, Vietnam, and Cambodia, and Hong Kong

countries to those among the most challenged. This provides an extremely heterogeneous picture with respect to the levels of economic growth and prosperity achieved in the region.

Furthermore, East Asia, like every nation, needs always to raise standard of living and quality of life of its people. For this reason, it always has to optimize its resource allocation. By doing so, it improves on its productivity and thus competitiveness. And as East Asia has adopted open and market-oriented economies, its enterprises have to compete internationally. Furthermore, there are now many new competitors in the world market as most socialist and state capitalist countries have adopted market-oriented economies.

Indeed, with the storms in the global economy and high energy and food prices raising uncertainties about the benefits of globalization, "the question is whether Asia can maintain its growth momentum against strong headwinds," (Børge Brende, 2008). Implicit in Brende's observation is a warning that Asian economies cannot be complacent and must focus on improving productivity and boosting competitiveness if they are to become an authentic and sustainable driver of growth in the world economy.

A paradoxical principle for success in the global economy is that collaboration can enhance competitiveness. Faced with the emergence of China and India, the nations in South-East Asia have come to understand and accept that they must collaborate and aim to create a European Union-style community if they are to remain competitive and relevant in the global economic landscape (World Economic Forum on East Asia, 2008).

According to the description above, the research about mapping East Asia competitiveness was proposed. The final objective of the research is to recommend an alternative policy that East Asian countries should implement to increase their competitiveness.

1.2 Research Questions

Research questions in this research are:

- i. How are the current positions of East Asian countries aggregate competitiveness (monetary and real sector competitiveness)?
- ii. How are the current positions of East Asian countries monetary sector competitiveness?
- iii. How are the current positions of East Asian countries real sector competitiveness?
- iv. What economic policy that East Asian countries need to implement to improve their competitiveness (monetary and real sector) ?

1.3 Research Objectives

The research objectives are:

- i. To provide descriptive view of East Asian countries competitiveness through a map.
- ii. To provide comparison of degree of competitiveness for each East Asia countries.
- iii. To provide details for each component of competitiveness of East Asian countries so each countries will have clear picture about their strength and weakness
- iv. To recommend an alternative policy that East Asian countries should implement to increase their competitiveness.

1.4 Significance and Policy Relevance of the Research

Based on the research background and questions, one of this research aims is to determine and map East Asian countries based on their monetary, real sector, and aggregate (monetary and real sector) competitiveness. As a result this research has several uses for policy makers in each East Asian countries as well as the region as a whole: firstly, based on the competitiveness map resulted, policy makers in each East Asian countries will be able to improve their economic policy so that it increase country's competitiveness. Furthermore, such economic policy will be focused on two broad sectors (monetary sector and real sector). Finally, the competitiveness map resulted will give all East Asian countries a useful information for increasing all East Asian countries competitiveness as a region (towards a highly competitive region). As mentioned before, a paradoxical principle for success in the global economy is that collaboration can enhance competitiveness.

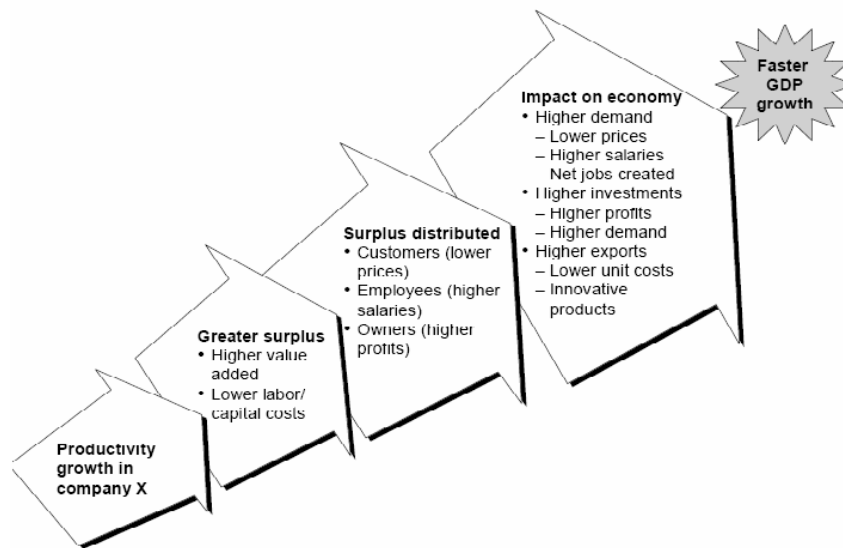
II.LITERATURE REVIEW

2.1 Competitiveness

Competitiveness is the key for firms, industries, and economies superior performance (Porter, 1990). Competitiveness of an economy can be viewed as the set of factors, policies and institutions that determine the level of productivity (Lopez-Claros, *et al.*, Global Competitiveness Index 2006) which allow faster economic growth (in medium or long run term). Competitiveness is a relatively subjective term. Based on traditional perspectives, competitiveness viewed from 2 (two) perspectives: macro and micro (McKinsey, 2004). According to the macro perspective, country's competitiveness refers to stable macroeconomic environment with low inflation and a balanced budget; a sound legal system; and a well-functioning government institution (thus relevant factors are macroeconomic, political, institutional and social aspects of the economy). On the other hand, according to the micro perspective, competitiveness refers to improvement of firm-level productivity in the national economy (thus, the relevant factor is firm-level competitiveness).

It is argued that the micro perspective is more touch based than the macro perspective (study around the world shows that true competitiveness was actually created at the firm level) (McKinsey, 2004). Such argument supported by the existence correlation between labor productivity and GDP per capita. When companies able to increase its productivity, they will be able to provide higher remuneration, higher profits, and/or lower prices. Such results will support increased in consumer spending, which will open doors for higher business investment, and improved competitiveness as a result of a lower unit cost. Further, as a result, national GDP will increase. Figure 1 provides illustration of these explanations.

Figure 1. Productivity as Economic Growth Engine



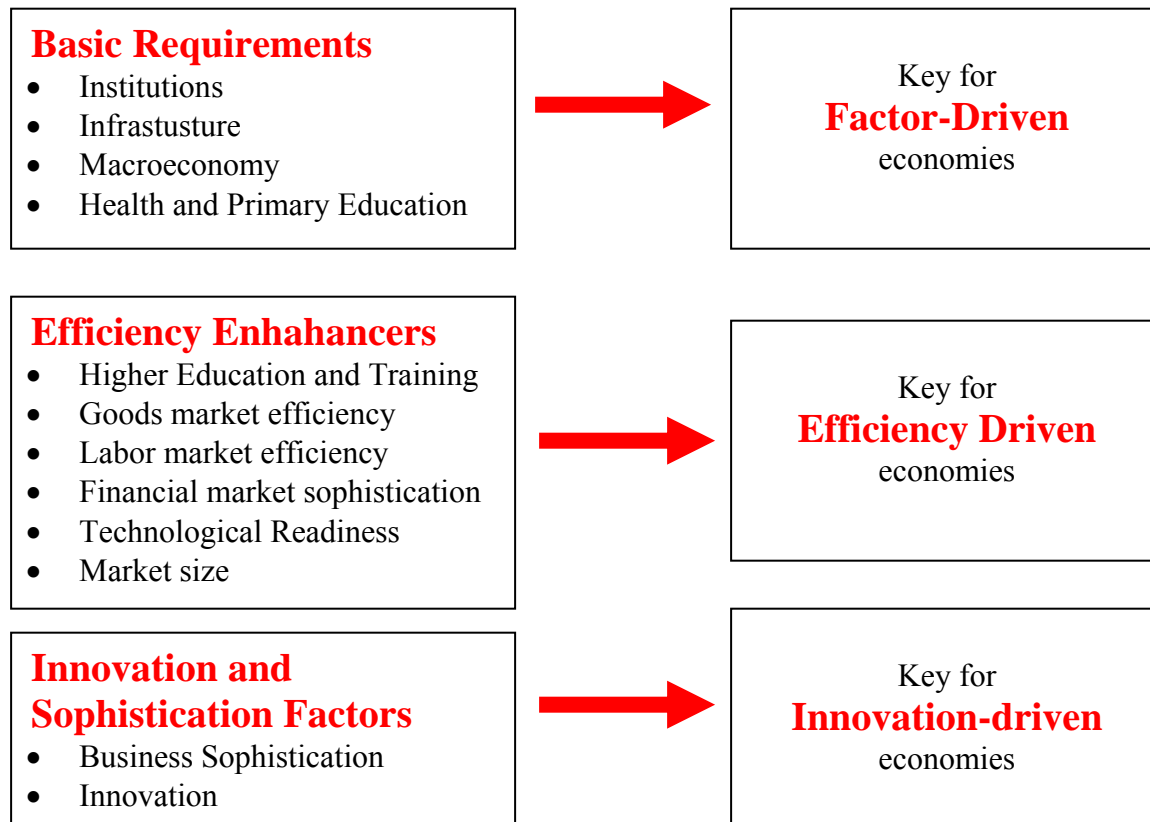
Source: McKinsey (2004). Exhibit 14. pp. 31

One of the commonly used competitiveness measurement is The Global Competitiveness Index (GCI), which argues that competitiveness is determined by 12 (twelve) pillars that affect the level of a country's productivity: institutions, infrastructure, macro economy condition, health and primary education, higher education and training, market efficiency (goods market efficiency, labor market efficiency, financial market sophistication), technological readiness, business sophistication, and innovation. The selection of these pillars is argued to be based on the latest theoretical and empirical research. Figure 2 shows the construction of GCI (from the twelve pillars to the sub indexes, and finally the GCI).

Based on Figure 2 and Table 1, GCI (thus, competitiveness) is viewed from 3 (three) angles: factor driven in the economy, efficiency, and innovation. Key factors for factor-driven economies include the 4 (four) earlier pillars, while keys for efficiency include: higher education and training, market efficiency (goods market efficiency, labor market efficiency, financial market sophistication), and technological readiness. Finally, the innovation aspect of competitiveness includes: business sophistication and innovation pillars.

Although GCI is well known, the concept of competitiveness used is still built on perception-based. Based on its nature, competitiveness can be measured as Present Value (PV) of a country's capital (or as future streams of income). There are 3 (three) types of capital: first, the natural capital which is inherent in the ecologies; second, the infrastructural capital which refers to non-natural (man-made) support systems (infrastructural capital should be built and installed). Both natural and infrastructural capital are categorized as tangible capital; the last one is the intangible capital, such as: human capital or knowledge capital. Thus, competitiveness of a country can be measured by incorporating the calculation of PV from these capitals.

Figure 2. Composition of Global Competitiveness Sub Indexes



Source: Global Competitiveness Report, 2007, Figure 1, Page 7

GCI provide the good measure of competitiveness for almost all countries in the world. But sometimes ordinary people did not have the access to the methodology and sources of data. On the other hand, not all East Asian countries are included in the rank of GCI for examples: Lao PDR, Brunei Darussalam, and Myanmar. So we try to simulate the process of creating the index and try to make a differentiation between monetary sector and real sector. We use the published data that people can access easily, so people can replicate for creating the same index for other periods and other countries.

Table 1. The 12 Pillars of GCI

GCI Pillars	Key Character that Build Competitiveness	Main Variables	Indicators	Source of Information (Survey (S)/Hard Data (HD))
1. Institutions	An institution forms the framework within private individuals, firms, and government and plays a central role in which societies	a. Public Institutions (legal framework & government attitudes) b. Private Institutions	01. Intellectual property protection 02. Property Rights 03. Transparency of government policy making 04. Judicial independence 05. Efficiency of legal framework	S S S S S

	increases the efficiency of each individual worker creates more productive economy.		06. Infant mortality 07. Life expectancy 08. Primary enrollment 09. Malaria incidence 10. HIV prevalence 11. Tuberculosis incidence	HD HD HD
5. Higher education and training	Quality higher education and training is necessary to move up the value chain beyond simple production process and products.	a. Well educated workers b. Have vocational and continuous on-the-job-training	01. Local availability of specialized research and training services 02. Internet access in schools 03. Quality of management schools 04. Extent of staff training 05. Quality of the educational system 06. Secondary enrollment 07. Tertiary enrollment 08. Quality of math and science education	S S S S HD HD S
6. Goods market efficiency	Efficient goods markets are producing the right mix of products and services given supply and demand conditions. Such markets also ensure that these goods are most efficiently traded.	a. Healthy market competition (domestic and demand) b. Demand conditions	01. Intensity of local competition 02. Effectiveness of anti-monopoly policy 03. Extent of market dominance 04. Agricultural policy costs 05. Business impact of rules on FDI 06. Degree of customer orientation 07. Prevalence of foreign ownership 08. Burden of customs procedures 09. Buyer sophistication 10. Total tax rate 11. Number of procedures required to start a business 12. Prevalence of trade barriers 13. Extent and effect of taxation 14. Time required to start business 15. Trade-weighted tariff rate	S S S S S S S HD HD S S HD HD
7. Labor Market Efficiency	The efficiency and flexibility of the labor market are critical to ensure that workers are	a. Flexibility to shift workers from one economic activity to other	01. Brain drain 02. Non-wage labor costs 03. Reliance on professional management 04. Firing costs	S HD S HD

	allocated to their most efficient use in the economy.	<p>b. Allow wage fluctuations without much social disruption</p> <p>c. Clear relationship between worker incentives and their efforts</p>	<p>05. Female participation in labor force</p> <p>06. Rigidity of employment</p> <p>07. Pay and productivity</p> <p>08. Hiring and firing practices</p> <p>09. Flexibility of wage determination</p> <p>10. Cooperation in labor-employer relations</p>	<p>HD</p> <p>HD</p> <p>S</p> <p>S</p> <p>S</p> <p>S</p>
8. Financial Market Sophistication	Efficient financial sector is needed to allocate the resources saved by nation's citizens to its most productive uses.	<p>a. A thorough assessment of risk</p> <p>b. Products and Methods are applicable even for small innovators</p> <p>c. Transparent risk capital and loans</p> <p>d. Availability of capital for private sector investment</p>	<p>01. Financing through local equity market</p> <p>02. Regulation of securities exchanges</p> <p>03. Financial market sophistication</p> <p>04. Strength of investor protection</p> <p>05. Restriction on capital flows</p> <p>06. Venture capital availability</p> <p>07. Soundness of banks</p> <p>08. Ease of access to loans</p> <p>09. Legal right index</p>	<p>S</p> <p>S</p> <p>S</p> <p>HD</p> <p>S</p> <p>S</p> <p>S</p> <p>HD</p>
9. Technological readiness	An economy adopts existing technologies to enhance the productivity of its industries	<p>a. Dissemination of ICT knowledge</p> <p>b. ICT friendly regulatory framework</p>	<p>01. Laws relating to ICT</p> <p>02. Firm-level technological absorption</p> <p>03. Availability of latest technologies</p> <p>04. FDI and technology transfer</p> <p>05. Internet users</p> <p>06. Mobile telephone subscribers</p>	<p>S</p> <p>S</p> <p>S</p> <p>S</p> <p>HD</p> <p>HD</p>
10. Market Size	Large market allow firms to exploit economic of scale	a. International trade	<p>01. Foreign market size index</p> <p>02. Domestic market size index</p>	<p>HD</p> <p>HD</p>
11. Business Sophistication	Business sophistication leads to higher efficiency in producing goods and services	<p>a. Quality of overall business networks</p> <p>b. Quality of individual firms' operations & strategies</p>	<p>01. Value chain breadth</p> <p>02. Nature of competitive advantage</p> <p>03. Local supplier quality</p> <p>04. Willingness to delegate authority</p> <p>05. Extent of marketing</p> <p>06. Production process sophistication</p> <p>07. Control of international distribution</p>	<p>S</p> <p>S</p> <p>S</p> <p>S</p> <p>S</p> <p>S</p> <p>S</p>

			08. State of cluster development	
12. Innovation	Innovation is particularly important as they approach the production frontiers not in the diminishing way.	<ul style="list-style-type: none"> a. Making incremental improvements in technologies b. Design and developed cutting-edge product c. Supportive environment from both public and private sector d. Sufficient R&D budget and institutions e. Protection of IPR 	<ul style="list-style-type: none"> 01. Capacity of innovation 02. Government procurement of advanced technology products 03. University-industry research collaboration 04. Company spending on R&D 05. Quality of scientific research institutions 06. Availability of scientists and engineers 07. Utility patents 	<ul style="list-style-type: none"> S S S S S HD

To develop the GCI methodology includes several steps, and all of them were based under the principle that: there are many determinants of competitiveness which might give different impact to different countries.

Step 1:

Dividing the 12 pillars based on Porter’s Stages of Development (Table 2).

According to the GCR (2007), in the first stage, the economy is *factor driven* and countries compete based on their factor endowments, primarily unskilled labor and natural resources. Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. Maintaining competitiveness at this stage of development hinges primarily on well-functioning public and private institutions (pillar 1), appropriate infrastructure (pillar 2), a stable macroeconomic framework (pillar 3), and a healthy and literate workforce (pillar 4).

As wages rise with advancing development, countries move into the *efficiency-driven* stage of development, when they must begin to develop more efficient production processes and increase product quality. At this point competitiveness is increasingly driven by higher education and training (pillar 5), efficient goods markets (pillar 6), well-functioning labor markets (pillar 7), sophisticated financial markets (pillar 8), a large domestic or foreign market (pillar 9), and the ability to harness the benefits of existing technologies (pillar 10).

Finally, as countries move into the *innovation-driven* stage, they are able to sustain higher wages and the associated standard of living only if their businesses are able to compete with new and unique products. At this stage, companies must compete through innovation (pillar 12), producing new and different goods using the most sophisticated production processes (pillar 11).

Step 2:

Developing index by integrate the stages of the economic development by attributing higher relative weights to pillars that relatively more important for country’s (given its particular stage of economic development).

To take this into account, the pillars are organized into three sub indexes, each critical to a particular stage of development. The *basic requirements sub index* groups those pillars most critical for countries in the factor-driven stage. The *efficiency enhancers sub index* includes those pillars critical for countries in the efficiency-driven stage. And the *innovation and sophistication factors sub index* includes all pillars critical to countries in the innovation-driven stage (Figure 2)

Further, specific weight was attributed to each sub index (Table 2). To obtain the precise weights that each sub index gets in the overall GCI, a maximum likelihood regression of GDP per capita was run against each sub index for past years, allowing for different coefficients for each stage of development. The rounding of these econometric estimates led to the choice of weights displayed in Table 2.

Table 2. Weights of the 3 main groups of pillars at each stage of development

Pillar Group	Factor driven stage (%)	Efficiency driven stage (%)	Innovation driven stage (%)
Basic requirements	60	40	20
Efficiency enhancers	35	50	50
Innovation and sophistication factors	5	10	30

Source: Table 1. Chapter 1.1. Page. 8. GCR (2007)

To provide justification for the weighting system, sensitivity analysis of the following regression was made:

$$GCI_{is} = \alpha_{s1} \text{Basic}_i + \alpha_{s2} \text{Efficiency} + (1-\alpha_{s1}-\alpha_{s2}) \text{Innovation} \dots\dots\dots(1)$$

Where s = 1st, 2nd, and 3rd stage of economic development and where each value of α_{s1} and α_{s2} may take all possible values from 0 to 1.

Step 3:

Since the development of GCI depends on individual country’s stage of development then there should be criteria used to categorized country’s economic development. The criteria includes: level of GDP per capita at market exchange rate as a proxy of wages; and, the share of exports of primary goods in total exports (G&S) to proxy country’s factor driven. Its latter assumes that country’s with export more than 70 per cent of primary products are to a large extent factor driven.

In the other hand country’s falling in between two of the three stages are considered to be in “transition”. For these countries, the weights change smoothly as a country develops, reflecting the smooth transition from one stage of development to another. By introducing this type of transition between stages into the model—that is, by placing increasingly more weight on those areas that are becoming more important for the country’s competitiveness as the country develops—the index can gradually “penalize” those countries that are not preparing for the next stage.

Table 3 provides classification of samples countries used in GCR 2007 based on their stages of development.

Table 3. List of Countries/Economies at Each Stage of Development

Stage 1	Transition from 1 to 2	Stage 2	Transition from 2 to 3	Stage 3
Amenia	Albania	Algeria	Bahrain	Australia
Bangladesh	Azerbaijan	Argentina	Barbados	Austria
Benin	Bosnia and	Brazil	Croatia	Belgium
Bolivia	herzegovina	Bulgaria	Crezh Republic	Canada
Burkina Faso	Botswana	Chile	Estonia	Cyprus
Burundi	China	Osta Rica	Hungary	Denmark
Camidia	Colombia	Dominican Republic	Malta	Finland
Cameroon	Ecuador	Jamaica	Qatar	France
Chad	El Salvador	Latvia	Slovank Republic	Germany
Egypt	Guetamala	Lithuania	Taiwan, China	Greece
Ethiopia	Jordan	Macedinia, FYR	Trinidad and Tobago	Hong Kong SAR
Gambia, The	Kazakhstan	Malaysia		Iceland
Georgia	Kuwait	Mauritus		Ireland
Guyana	Libya	Mexico		Israel
Honduras	Oman	Montenegro		Italy
India	Saudi Arabia	Namibia		Japan
Indonesia	Tunisia	Panama		Korea
Kenya	Ukraina	Peru		Luxemburg
Kyrgyz Republik	Venezuela	Poland		Netherlands
Lesotho		Romania		New Zealand
Madagascar		Russia		Norway
Mali		Serbia		Portugal
Mauritania		South Africa		Puerto Rico
Moldova		Suriname		Singapore
Mongolia		Thailand		Slovenia
Morocco		Turkey		Spain
Mozambique		Uruguay		Sweden
Nepal				Switzerland
Nicaragua				United Arab
Nigeria				Emirates
Pakistan				United Kingdom
Paraguay				United States
Philippines				
Senegal				
Sri Lanka				
Syria				
Tajikistan				
Tanzania				
Timor-Leste				
Uganda				
Uzbekistan				
Vietnam				
Zambia				
zimbabwe				

Source: Table 3. Chapter 1.1. Page 9.GCR (2007).

Based on the above table, stage of development in East Asia economies were varies into the following (Table 4).

Table 4. East Asia Countries/Economies Stage of Development

Stage 1	Transition 1 to 2	Stage 2	Transition 2 to 3	Stage 3
Cambodia	China	Malaysia	Taiwan, China	Hong Kong SAR
Indonesia		Thailand		Japan
Philippines				Korea
Viet Nam				Singapore

Source: .GCR (2007).

2.2 Component of Competitiveness Index

We will adopt the GCI component for creating competitiveness index for East Asia. But according to the data availability, we only capture the data available in hard data (secondary data) and available for all countries in this study. The aggregate competitiveness index represents the degree to which a nation can strive against another force to achieve dominance or attaining economic goals (including monetary and real sector competitiveness). Here, monetary competitiveness is argued as the degree to which a nation can achieve its monetary goal; while real sector competitiveness is the degree to which a nation can attain its goal in the goods and services market (real sector). Monetary competitiveness index is formed by factors that determine monetary competitiveness, which are: degree of financial development, price stability, and banking sector efficiency. On the other hand, real sector competitiveness index is determined by factors that determine real sector independence, which includes: infrastructure, health and primary education, higher education, market efficiency, and technological readiness.

Distinguishing monetary sector and real sector

According to basic theory of macroeconomics, households, firms, the government and the rest of the world all interact in the goods and services market, labor market, and money market.

Goods and services market

Household and the government purchase goods and services from firm in goods and service market. In this market firms also purchase goods and services from each other.

Labor market

In this market, household supply labor, and firms and the government demand labor.

Money market/Financial market

Household, firm and government supply fund to money market. Household, firms, and government also demand funds from this market to finance various purchases.

The goods market and money market do not operate independently. Events in the money market affect what goes in the goods market and events in the goods market affect what goes in the money market. There are two key links between the goods market and money market:

- Income which is determined in the goods market has considerable influence on the demand for money in money market

- The interest rate which is determined in the money market has the effect on planned investment in the goods market

An efficient financial sector/monetary sector is needed to allocate the resources saved by nation's citizens to its most productive uses. A proficient financial/monetary sector channels resources to the best entrepreneurs or investment project. A well functioning financial/monetary sector needs to provide capital and loans. Economies requires sophisticated financial market that can make capital available for private sector investment from such sources as loans from a sound banking sector, well regulated securities exchange, and venture capital.

2.2.1 Monetary Sector Index

1. The Degree of Financial Development

The degree of financial development is the first factors that influenced monetary competitiveness being discussed here. The reason is a high degree of financial development in a country will determine its ability to achieve its monetary policy goals. A developed and stable financial system is needed to absorb asymmetrical shock and to restrict pressure on exchange rate stability. A developed and stable financial system is financial system which is formed by good performing banking system and money market.

Economic literature gives several measurement alternatives for degree of financial development. Several famous measurements includes: ratio of monetary aggregate to each country GDP; ratio of domestic private sector credit to the total of domestic; and ratio of commercial bank asset to total bank assets to GDP (Mavrotas and Son, 2007). Other important measure is capital market capitalization to GDP.

2. Price Stability

The stability of price is important for business and, therefore, is important for the overall competitiveness of a country. (Fischer, 1993). Firms cannot make informed decision when inflation rate is in the hundred.

3. Efficiency in banking intermediation

Efficiency in banking intermediation describes cost of fund in one country. It can be proxy by interest rate differential between deposit rates and lending rates.

2.2.1 Real Sector Index

1. Infrastructure

Representative for infrastructure variables is telephone lines. The specific definition is main telephone lines per 100 population. A main telephone lines is a telephone lines connecting the subscriber's terminal equipment to the public switched telephone network and that has a dictated port in the telephone exchange equipment.

2. Health and primary education

Indicators that represent health and primary education are life expectancy, primary enrollment, and secondary enrollment. Source of data for health and primary education is World Development Indicators. According to World Development Indicators, primary enrollment corresponds to the ratio of official school age (as defined by the national education

systems) who are enrolled in school to the population of the corresponding official school age. Primary education provide children with basic reading, writing, and mathematics skills along with elementary understanding of such subjects as history, geography, natural science, social science, art, and music. On the other hand, secondary enrollment corresponds to the ratio of total enrollment to the population of the age group that officially corresponds to the secondary education level. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject or skill-oriented instruction using more specified teacher.

3.Higher Education and Training

Indicators that represent higher education and training is tertiary enrollment. The ratio is same with the primary education, but corresponds to the tertiary education level. Tertiary education whether or not leading to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

4.Market Efficiency, Market Size, and Competition in Domestic Market

Indicator that represent market efficiency is time to start a business. The definition is number of days required to start a business. On the other hand, indicators that represent market size are domestic market size and and exports as percentage of GDP. Domestic market size is a sum of gross domestic products plus value of imports of goods and services, minus value of exports of goods and services. Competition in Domestic Market is captured by imports as percentage of GDP.

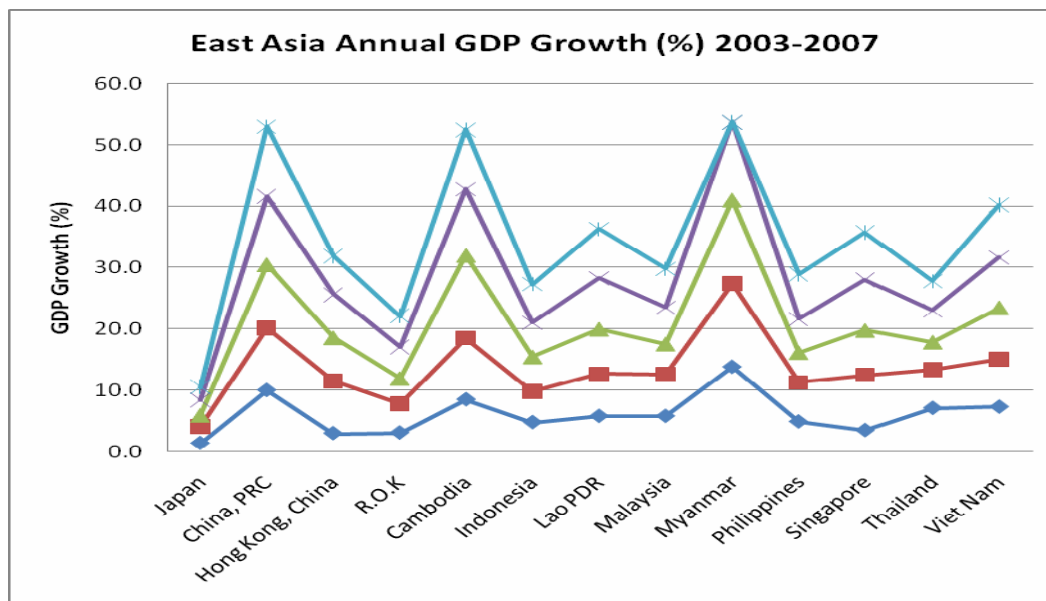
5.Technological Readiness

Cellular telephones, internet users, and personal computers are indicators that represent technological readiness. Definition of cellular telephones is access to telephone network using cellular technology, with operational definition cellular telephone subscribers per 100 population. Internet users are people with acces to the worldwide network. The operational definition is internet users per 100 population. According to the World Bank, personal computers are self contained computers designed to be used by single individual. Personal computers are defined as personal computers per 100 population.

III.OVERVIEW OF EAST ASIA ECONOMY

Throughout 2007 the East Asian economy continues to grow modestly. According to ADB Basic Indicators 2008, on average 2007 East Asia's GDP (excluding Myanmar) have remained at 6.9 per cent.. Figure 3 show GDP growth from East Asian countries (excluding Myanmar) for 2003-2007.

Figure 3. GDP Growth on East Asia (2003-2007)



Note : 2003 2004 2005 2006 2007

Source: ADB Key Indicators 2007, ADB Basic Statistics 2008, Japan Monthly Statistics May 2008

Japan, Hong Kong, Republic of Korea (ROK), Cambodia, Lao PDR, and Thailand marked a slowdown in their GDP growth on 2007; while, PRC, Indonesia, Malaysia, Philippines, Singapore, and Viet Nam marked an increased. Although, it was argued that growth in the emerging one (PRC, ASEAN-4) created and supported growth in the less developed economies in the region (Viet Nam).

Two most significant contributions were given by industry and services sector. Countries such as: PRC, ROK, Thailand, Lao PDR, Myanmar and Viet Nam, experienced high value added from their industry. While, the rest of East Asian countries (excluding Japan and Brunei Darussalam) found their value added highly from services sector (Table 5).

Table 5. East Asia Sectoral Value Added

Country	2007 Sectoral Value Added (%)		
	Agriculture	Industry	Services
China, PRC	3.7	13.4	11.4
Hong Kong, China	- 8.8	-0.9	7.2
R.O.K	1.1	5.5	4.8
Cambodia	4.5	7.5	10.0
Indonesia	3.5	4.7	8.9
Lao PDR	2.7	14.0	7.2
Malaysia	2.2	3.3	10.0
Myanmar	3.3	9.8	6.5
Philippines	5.1	6.6	8.7
Singapore	0.2	7.3	7.8
Thailand	3.9	5.4	4.3
Viet Nam	3.4	10.6	8.7

Source: ADB Basic Indicators 2008

Further, economic growth in East Asia supported by several major factors. First is the strong contribution from private consumption (Figure 4). Private consumption gave significant contribution for the case for Hong Kong, ROK, Indonesia, Malaysia and the Philippines. Second, is investment, which gave significant contribution for PRC's and Singapore's economy (Table 6).

Figure 4. Contribution of Private Consumption to GDP (%) 2005-2007 (annual)

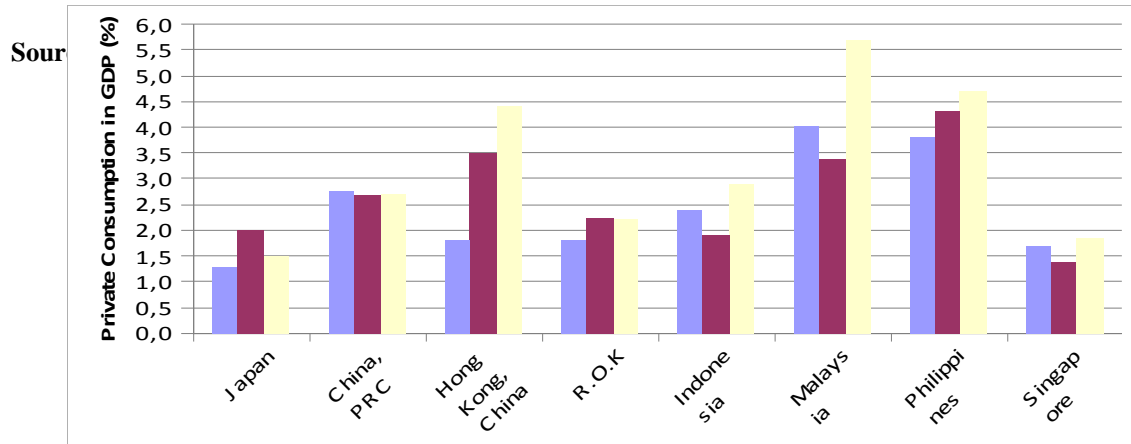


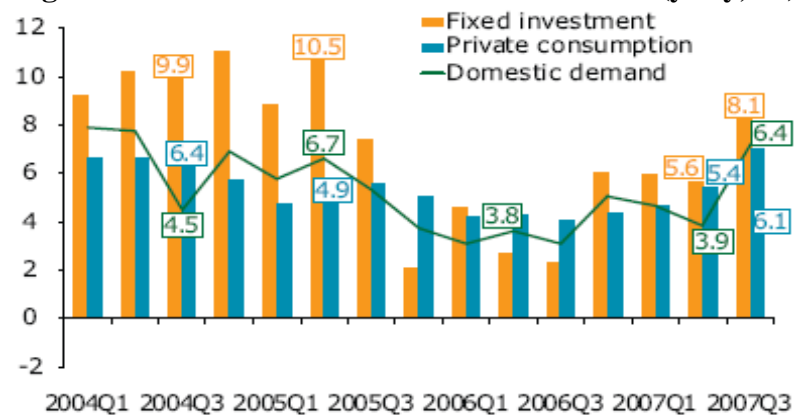
Table 6. Contribution of Investment to GDP Growth (%) 2005-2007 (annual)

Country	Investment Contribution to Growth (%)		
	2005	2006	2007
China, PRC	3,9	4,6	4,2
Hong Kong, China	-0,3	1,7	2,4
R.O.K	0,6	1,1	0,7
Indonesia	2,8	0,3	0,5
Malaysia	-0,2	1,9	-0,3
Philippines	-1,8	0,5	1,6
Singapore	-0,2	3,1	4,6

Source: ADB Key Indicators 2007, ADB Basic Statistics Database 2008.

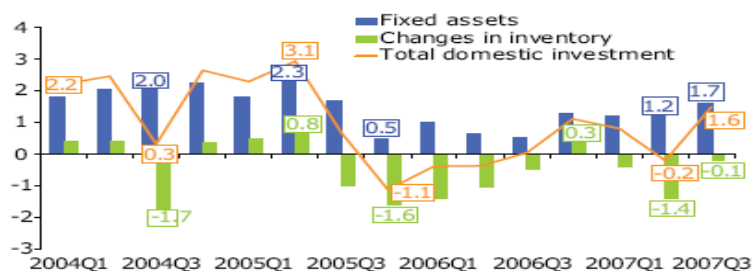
Further for PRC, the high GDP growth was resulted from strong investment, continuous increased in consumption, and strong export growth. For the ASEAN-4 economies (Thailand, Malaysia, Indonesia and the Philippines), the 6.2 per cent GDP growth in the last semester of 2007 was resulted from a strong recovery in domestic demand (as shown by Figure 5), increased private consumption due to increased in households income and spending (which is fueled by increasing public sector salary, healthier labor market, and stronger overseas remittances), and increased in fixed investments (Figure 6).

Figure 5. ASEAN-4 Domestic Demand Growth (y-o-y, %)



Source: ADB Asia Economic Monitor 2007 – Emerging East Asia (A Regional Economic Update). Figure 7. pp. 5.

Figure 6. Investment Contribution to GDP Growth: ASEAN-4



Source: ADB Asia Economic Monitor 2007 – Emerging East Asia (A Regional Economic Update). Figure 8. pp. 5.

On the other hand, the decline of Japan’s economic growth in the third quarter was supported by both weakened investment and consumption growth. Table 7 shows Japan’s growth of investment and GDP.

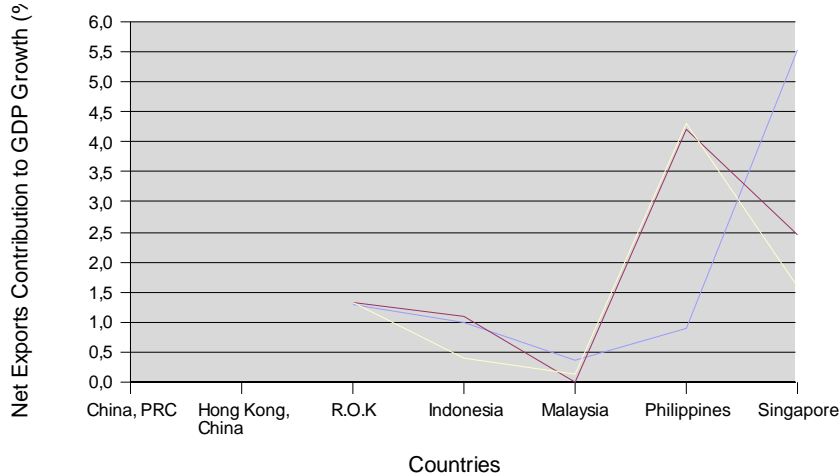
Table 7. Japan's Annual Private Consumption Contribution to GDP Growth (%) 1998-2007

Year	GDP (exp)	Private Consumption	Share of Private Cons.to GDP (%)
1998	5.048.429	2.825.269	0,56
1999	4.976.286	2.838.801	0,57
2000	5.029.899	2.827.722	0,56
2001	4.977.197	2.842.166	0,57
2002	4.913.122	2.832.539	0,58
2003	4.902.940	2.817.910	0,57
2004	4.983.284	2.844.284	0,57
2005	5.017.344	2.859.356	0,57
2006	5.089.251	2.907.190	0,57
2007	p5.156.175	p2.935.282	0,57

Source: Japan Monthly Statistics May 2008.

An important thing to highlight is the declining contribution of net exports to GDP growth for most of ASEAN-5, namely: Indonesia, Malaysia, and Singapore. The Philippines, on the other hand experienced increased in their Net Exports contribution along with PRC (Figure 7).

Figure 7. Contributions of Net Exports to GDP growth (y-o-y, %)

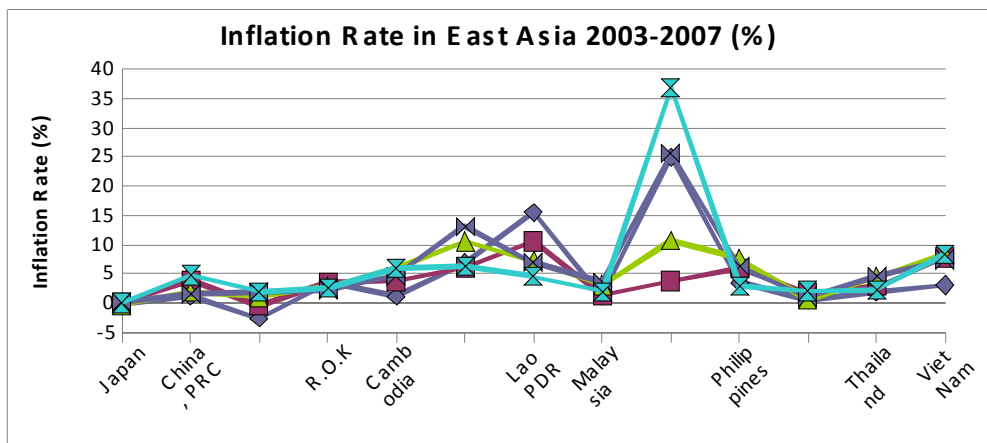


Note: 2005 2006 2007

Source: ADB Basic Indicators 2008.

During 2007, East Asian economies also experienced increase in inflationary pressures (except for Japan). Figure 8 provide the movement of East Asia’s regional headline inflation rate.

Figure 8. Regional Inflation – Headline Rates (y-o-y, %)



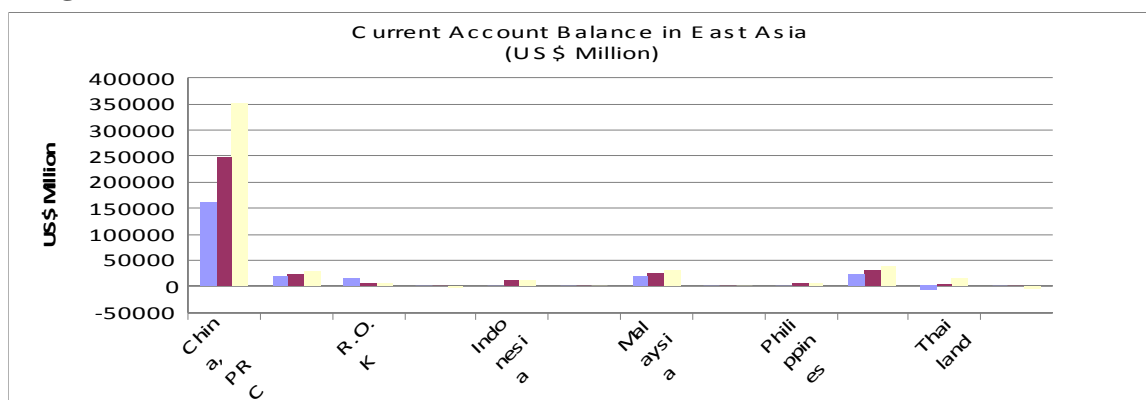
Source: Asian Development Outlook Database 2008. ADB.

Such increased in headline inflation was mainly resulted from rapid and persistent increased in food and energy prices (which occurs due to real capacity constraints in production). In addition to the headline inflation, it is also reported that the region’s core inflation also have increased. Responsible factor for such conditions include the persistently high growth of monetary aggregates.

Another important fact in East Asia's 2007 economy is the continuously growing Current Account (CA) surpluses, strong capital inflows and strengthened Balance of Payments (BOP) positions. Throughout the regions, it is reported that trade surpluses have widened as a result of slower import growth. Such situation was argued to be related with inventory adjustments in the industry that have been taken place over the past few quarters (ADB Asia Economic Monitor 2007). Furthermore, it is also reported that export also experienced declining growth (although not as much as import), especially due to a cyclical downsizing in the global information technology industry.

Figure 9 to 10 and Table 10 will show the growing CA surpluses, strong capital inflows as well as stronger Balance of Payment (BOP) position in East Asia, respectively.

Figure 9. East Asia Current Account Balance 2005-2007 (US\$ Million)



Note: 2005 2006 2007

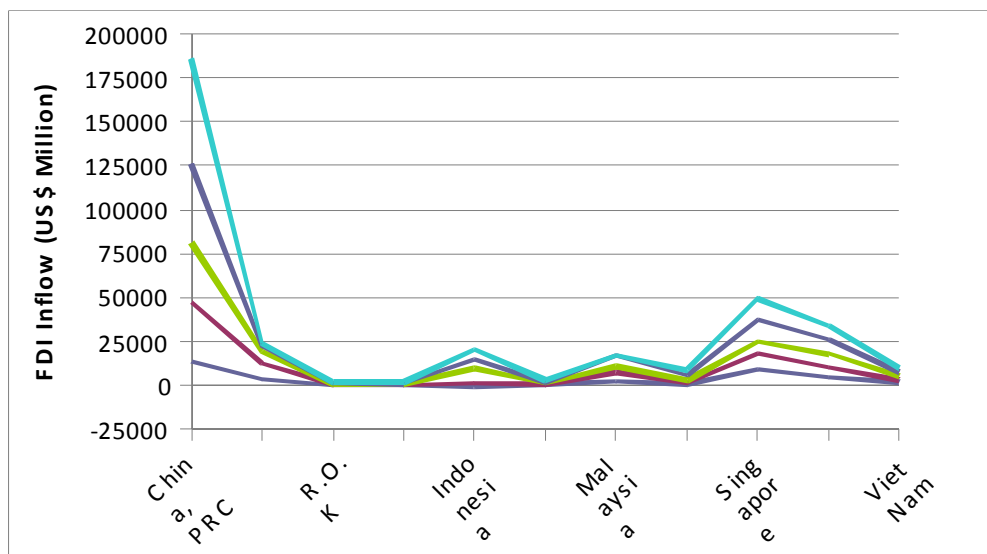
Source: Asian Development Outlook Database 2008.

Table 10. East Asia Trade Balance 2005-2007 (US\$ Million)

Country	2005	2006	2007
China, PRC	160818	249866	353049
Hong Kong, China	20180	22935	27399
R.O.K	14981	5385	5954
Cambodia	-592	-525	-713
Indonesia	278	10836	11009
Lao PDR	-193	-542	-609
Malaysia	19984	25467	29713
Myanmar	444	1046	1099
Philippines	1984	5347	6351
Singapore	22273	29766	39157
Thailand	-7642	2174	14923
Viet Nam	-519	-299	-5695

Source: IMF World Economic Outlook Database

Figure 10. FDI Inflow in East Asia (US\$ Million)

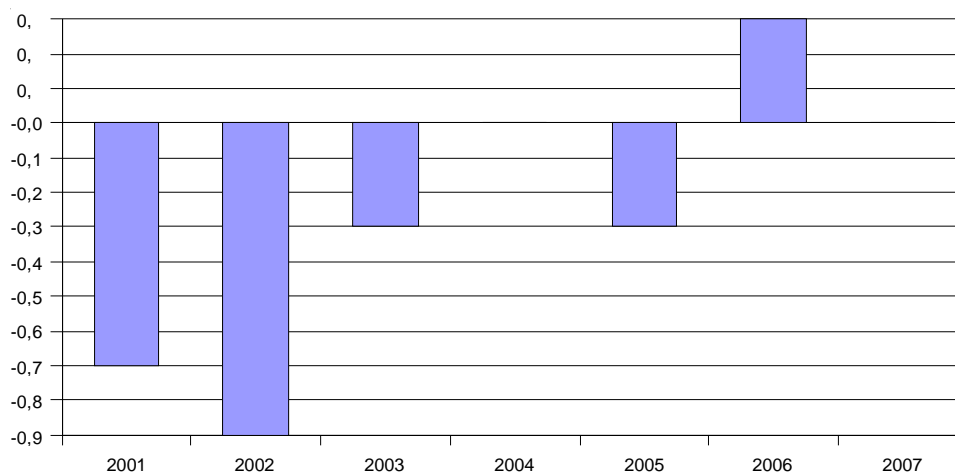


Note: 2003 2004 2005 2006 2007

Source: Asia Development Outlook 2008 Database. ADB.

On contrary to the increasing inflationary pressures in the other part of the region, Japan's economy experienced zero inflation (CPI inflation) throughout 2007. According to the IMF WEO 2007, in recent months Japan's headline inflation have turned negatives. Several factors responsible for Japan's deflation includes: strong corporate investments and the structural reforms existence which boosted productivity (thus support the economy to work at its full capacity).

Figure 11. Japan's Measures of Inflation (% change from a year ago)



Source: Japan Monthly Statistics May 2008

Based on the above mentioned macroeconomic outlook of the region, several important facts are worth mentioned with respect to export and import as well as investments activities in the region:

- (a) Exports of East Asia developing economies (excluding China and Japan) have been declined throughout 2000-2006. Exports from China to US however have increased. With exception of Cambodia and Philippines, exports from East Asia developing economies to

Japan throughout 2000-2006 have slowed down. Finally, almost all East Asia developing economic experienced declined of exports to the EU, except for China, ROK, and the Philippines.

- (b) From the above mentioned facts it is worth to mentioned that while China enjoyed increased in exports and FDI inflows, the rest of developing East Asia experienced the opposite.

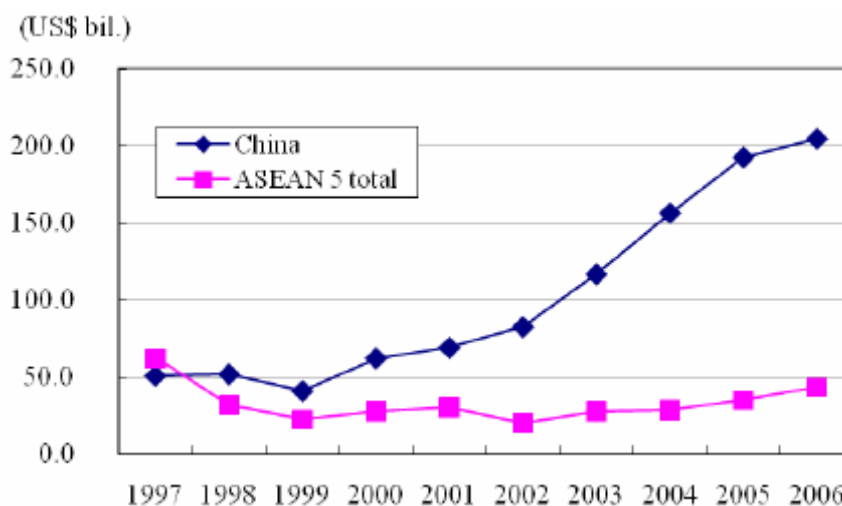
Table.11. East Asia Direction of Exports (% of Total) 2000 & 2006

Country	Direction of Export (% of total 1)					
	US		Japan		EU	
	2000	2006	2000	2006	2000	2006
China, RRC	20.4	20.5	16.3	9.2	16.1	19.1
Hongkong, China	23.0	15.0	5.5	4.9	15.5	13.9
R.O.K	20.9	12.7	11.3	7.7	13.7	14.6
Cambodia	65.4	53.2	0.9	1.0	20.5	18.2
Indonesia	13.0	11.0	22.1	18.5	13.7	11.7
Lao PDR	2.2	0.7	2.8	1.0	26.0	10.1
Malaysia	19.5	18.1	12.3	8.5	13.3	12.3
Myanmar	22.0	NA	5.4	5.1	16.4	7.4
Philippines	27.3	17.3	13.4	15.6	16.5	17.5
Singapore	16.7	10.0	7.3	5.4	13.5	11.1
Thailand	20.5	14.7	14.2	12.3	15.7	13.5
Vietnam	4.9	20.8	17.2	12.0	20.0	19.4

Source: IMF Direction of Trade Statistics January 2008.

- (c) Further, there has been continues change in the FDI inflows into China and ASEAN-5 since 2002. Figure 12 shows that there has been a continuous increased in FDI inflow to China. In 2006, the number reportedly expands to more than 4 (four) times total FDI inflows to ASEAN-5.

Figure 12. Changes in Volume of Approved FDI in China and ASEAN-5



Source: IDE-JETRO 2008 Economic Outlook for East Asia. Figure 4. pp. 32.

As a result of strong BOP positions, pressures continue on most of the East Asian currencies. According to ADB, in the first 11 months of 2007, the region's currencies were

appreciated by 4.8 per cent against the US Dollar (Table 12) creating increased in Central Bank interference which indicates by rising foreign exchange reserves. Although, and important note should be made for Yen. According to IMF WEO October 2007, Yen have been depreciated on its real effective basis on first half of 2007 to its weakest level. Although, currently Yen have appreciated due to heighten financial market volatility.

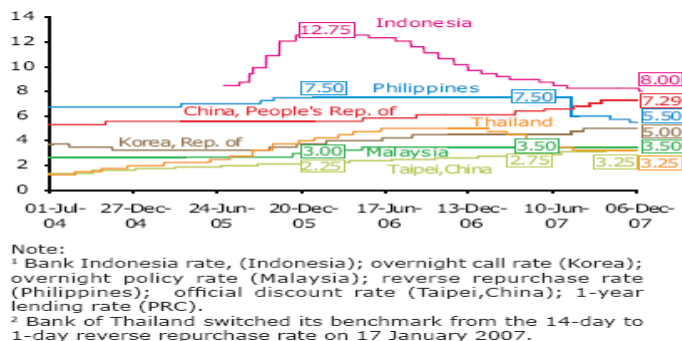
Table 12. Exchange Rates to the US\$ (Annual Average)

Country	Exchange Rates to US\$				
	(Annual Average)				
	2003	2004	2005	2006	2007
Japan					
China, PRC	8.3	8.3	8.2	8.0	7.6
Hong Kong, China	7.8	7.8	7.8	7.8	7.8
R.O.K	1191.9	1143.7	1024.1	955.1	929.2
Cambodia	3979.0	4019.0	4097.0	4107.0	4060.0
Indonesia	8573.4	8934.6	9712.0	9020.0	9136.2
Lao PDR	10569.0	10585.5	10655.2	10159.9	9680.0
Malaysia	3.8	3.8	3.8	3.7	3.4
Myanmar	5.7	5.6	5.9	5.6	5.6
Philippines	54.3	56.1	55.0	51.2	45.9
Singapore	1.7	1.7	1.7	1.6	1.5
Thailand	41.5	40.2	40.2	37.9	34.6
Viet Nam	15509.6	15704.0	15858.9	15994.3	16063.2

Source: Asia Development Outlook 2008 Database. ADB.

Based on the economic performance throughout the year (especially since July's global financial turbulence which creates increasing region's financial markets volatility), East Asia's monetary authority showed a cautious behavior as it is signed by steady and tightened policy rate. Thailand and Malaysia reportedly kept their policy rate unchanged, while Korea, PRC, and Taipei-China continued to tighten the policy rate (Figure 13). As for Japan's economy, due to the series of deflation, IMF² predict that Japan monetary policy will most likely focused on overcoming deflation and strengthening economic growth through lower policy rates.

Figure 13. Policy Rates¹ (% per annum)



Source: ADB Asia Economic Monitor 2007 – Emerging East Asia (A Regional Economic Update). Figure 19. pp.13.

Figure 13 also shows that Indonesia has lowered its policy rate up to the 8 per cent level, while the Philippines cut its policy rates into 5.5 per cent by November 2007. Among the NIEs it is reported that there has been some convergence in the monetary direction, where Korea,

Taipei-China and Singapore increased their policy rate, respectively in July & August, September, and October 2007. Such action expected to reduce inflationary pressures and ensures price stability of the country.

On fiscal policy, according to ADB, most East Asia's governments act prudent (although there is a various trend). Table 7 shows fiscal balance of several East Asia's central government.

Table 13. Fiscal Balance of Central Government (% of GDP)

Country	2003	2004	2005	2006	2007 ¹	2008 ¹
Cambodia	-6.0	-4.7	-3.4	-1.5	-4.1	-3.2
China, Peoples Rep. of	-2.2	-1.3	-1.2	-0.5	-0.9	-1.2
Hongkong, China	-3.3	1.7	1.0	1.6	1.9	2.3
Indonesia	-1.7	-1.0	-0.5	-1.0	-1.5	-1.7
Korea, Rep. of	0.1	-0.5	-1.0	-1.3	-1.5	-1.2
Malaysia	-5.3	-4.3	-3.8	-3.3	-3.2	-3.1
Philippines	-4.6	-3.8	-2.7	-1.1	-0.1	0.1
Singapore ²	4.1	5.5	8.3	6.6	4.4	...
Taipei, China ²	-3.0	-2.1	-1.7	-0.7	-1.9	...
Thailand ²	0.6	0.3	0.2	0.1	-1.7	...
Vietnam	-1.2	0.9	-1.2	-5.0

... = not available

¹ budget

² fiscal year

Source: ADB Asia Economic Monitor 2007 – Emerging East Asia (A Regional Economic Update). Table 2. pp.14.

According to Table 13, Cambodia, PRC, Indonesia, Korea, Malaysia, the Philippines, Taipei-China and Thailand experienced deficit of fiscal balance. Based on ADB Asia Development Outlook 2007, PRC's fiscal deficit was noted to be at modest level – approximately 0.9 per cent of GDP (ADB Asia Economic Monitor 2007). Such modest deficit was caused by rapid spending of local government which exceeds the strong revenue growth of central government. PRC central government strong revenue growth was attributed to the rapid and stable growth of the economy. While, the rapid expenditure growth of the local government were used in agricultural, forestry and water supply projects; education; health and medical care; as well as R&D.

Singapore and Hong Kong-China are two countries that continue to experience fiscal surplus. The fiscal deficits in Korea is mainly caused by the growing costs of social security and welfare programs; while fiscal deficits in Taipei-China had increased despite of the country's efforts to reduced it. Overall, according to ADB Asia Development Outlook 2007, NIEs are moving towards fiscal consolidation (with ongoing efforts to improve revenue collection, broaden tax bases, rationalize incentives, and manage expenditures to efficiency).

In ASEAN-4 countries, Indonesia's fiscal deficit has remained modest, while Malaysia's and the Philippines fiscal deficit have improved (possibly due to stronger oil-related revenues; and the government goals for strong revenues as well as large privatization receipts, respectively). On the other hand, Thailand fiscal position weakens in 2007 due to lingering political uncertainty as well as tightened government rules.

As for Japan, according to IMF WEO (October 2007), considerable progress has been made in reducing fiscal deficits in recent years. Further, it is expected that the pace of

adjustment will be slow (it is expected that Japan structural budget deficits will decline by 0.25 per cent of GDP a year compared to the level of 1 per cent in the previous year).

Given the importance of current ASEAN 10 performance on East Asia economy, below is given some additional summaries of ASEAN-10 macroeconomic indicators series.

Table 14. Key Economic Data of ASEAN 10 Countries

Country	Real GDP Growth (%)	Inflation (CPI) (%)	Current Account Balance (USD Mill)	Gross Intl Reserves (USD Mill)
<i>Brunei Darussalam</i>				
2006	3.8	0.5	6,718	523
2007*	2.6	1.2	6,591	n.a
2008**	3	1.2	6,760	n.a
<i>The Philippines</i>				
2006	5.4	6.2	3,349	22,967
2007*	5.8	4	2,834	n.a
2008**	5.8	4	2,675	n.a
<i>Indonesia</i>				
2006	5.5	13.1	9,728	42,586
2007*	6	6.3	7,506	n.a
2008**	6.3	5.3	5,667	n.a
<i>Cambodia</i>				
2006	10.4	4.7	-554	1,097
2007*	9.5	4.2	-700	n.a
2008**	9	3.5	-921	n.a
<i>Lao PDR</i>				
2006	7.6	6.8	-460	300
2007*	7.1	4	-898	n.a
2008**	7.9	4.5	-933	n.a
<i>Malaysia</i>				
2006	5.9	3.6	25,467	82,450
2007*	6	2 to 2.2	25,975	98367***
2008**	6 to 6.5	n.a	25,614	n.a
<i>Myanmar</i>				
2006	7	26.3	533	n.a
2007*	5.5	37.5	368	n.a
2008**	4	35	236	n.a
<i>Singapore</i>				
2006	7.9	1	36,288	136,261
2007*	7	1.5	39,644	n.a
2008**	5.7	1.5	41,939	n.a
<i>Thailand</i>				
2006	5	4.6	3,240	66,985
2007*	4.5	2.5	3,328	n.a

	2008**	4.8	2.5	2,169	n.a
Viet Nam					
	2006	8.2	7.5	179	11,425
	2007*	8	6.5	-796	n.a
	2008**	7.8	6.3	-1,158	n.a

*) Budget

**) Estimation

***) On August 15th 2007

Source: IMF World Economic Outlook 2007, IMF International Financial Statistics,

Asian Development Outlook 2007 and others

III. METHODOLOGY

3.1 Analytical Framework

This research will produced competitiveness map using the following methods

1. Construct competitiveness index in monetary sector and real sector and rank the countries based on the competitiveness index in first step
 2. Mapping East Asia competitiveness for each component of competitiveness
 3. Produce policy recommendations for low performer in East Asia Countries compared with the best performer in the world
 4. Doing cluster analysis
 5. Mapping East Asia competitiveness further in real sector using Revealed Comparative Advantage Analysis
1. Construct competitiveness index in monetary sector and real sector and rank the countries based on the competitiveness index in first step

The choices of these variables are based on GCR 2006-2007, and the consideration of hard data availability for all countries included in the analysis. GCR has not been produced index of competitiveness for Brunei Darussalam, Myanmar, and Lao PDR. On the other hand, this report is going to produce index of competitiveness for Brunei Darussalam, Myanmar, and Lao PDR . This is one of contribution of this paper.

Table 15: Factors Determined Monetary and Real Sector Competitiveness

Sector	Variables	Indicators
Real Sector	Infrastructure	Telephone lines
	Health and Primary Education	Life Expectancy Primary enrolment
	Higher Education and Training	Secondary enrolment ratio Tertiary enrolment ratio
	Market Efficiency ,Market Size, Competition in Domestic Market	Time required to start a business Domestic market size Export/GDP Competition : Import/GDP
	Technological Readiness	Cellular telephones Internet users

		Personal computers
Monetary Sector	Price Stability	CPI Inflation Rate
	Efficiency in Banking Sector	Interest Rate Spread
	Degree of financial development	Ratio of M2/GDP Ratio of Private Credit to Total Credit Ratio of capital market capitalization to GDP

Source: GCR 2007, Mavrotas and Son (2007)

2. Mapping East Asia competitiveness for each component of competitiveness

Second, is the formation of Monetary, Real Sector and Aggregate Competitiveness Index. Monetary and Real Sector Competitiveness Index are consists of the above factors, while the Aggregate Competitiveness Index consists of Monetary and Real Sector Competitiveness. The formation of these indexes will use Cluster Analysis and Composite Index approach. Formations of these indexes are conducted for East Asian countries.

3. Produce policy recommendations for low performer in East Asia Countries compared with the best performer in the world

Using benchmark countries as a comparison, an economic analysis was conducted, especially to analyze the gap in competitiveness level between East Asia countries and benchmark countries.

4. Doing Cluster Analysis

We use the method of clustering in this paper to classify countries into homogenous group based on indicators in the competitiveness index. By doing clustering, we will get some groups of East Asia competitiveness according to their competitiveness. Cluster analysis will be useful for creating optimal collaboration to enhance competitiveness. Cluster analysis also useful to make prioritization of policy for each cluster to enhance competitiveness.

5. Mapping East Asia competitiveness further in real sector using Revealed Comparative Advantage Analysis (RCA)

Because real sector performance more directly related to competitiveness, we will map real sector competitiveness more details. Revealed Comparative Advantage analysis will be used here. RCA will map competitiveness of one country in terms of export products competitiveness in the world market. Dynamic RCA and correlation of RCA will be used in the analysis.

3.2 Data

This research used data from ASEAN 9, Japan, South Korea, China, Hongkong, United States and several EU member countries The data source for this research consists of: various publications from international organizations (such as World Bank, IMF, UNDP, ADB, ASEAN Secretariat, UN Comtrade, ILO) and local bureau (secondary data); as well as survey on related sources on monetary and real sector competitiveness in all

sample countries (primary data). Table 16 below shows various secondary data used in this research and its sources.

Table 16 : Data Sources

No.	Publication Title	Publisher
1	International Financial Statistics	International Monetary Fund
2	Direction of Trade Statistics	International Monetary Fund
3	Key Indicators	Asian Development Bank
4	Trade Statistics: COMTRADE	United Nations
5	Labor Statistics	International Labor Organizations
6	Macroeconomic Indicators	Each country Statistics Bureau
7	World Development Indicators	World Bank
8	Human Development Report	UNDP
9	Global Competitiveness Report (GCR)	World Economic Forum (WEF)
10	Information and Technology Data	UNDP and International Telecommunication Union
11	Doing Business	World Bank

Source: Authors summary.

For the calculation of the competitiveness index, we used 2006 data. And for Revealed Comparative Advantage (RCA) we used 1999-2006 data. The last period data that available in complete version for all East Asia countries is 2006 data.

3.3 Methods of Analysis

1. *Monetary, Real Sector, and Aggregate Competitiveness Index: Composite Index Approach*

From GCI components we try to classified the components to monetary sectors and real sector. We only capture the component of index that available in hard data and available for all countries in this study. The components described in Table 15.

Aggregate competitiveness index will be determined using Composite Index Method. A Composite Index is a weighted index that provides measurement for performance. Thus, in this research, the competitiveness indexes will be formatted through weighting process. The values of index are from 0 to 1. To avoid the variability of index number, data standardization by process is done.

Aggregate Competitiveness Index = f(monetary sector index, real sector index)

We use two methods in weighting process. First methods are equal weight. Second methods are expert opinion / expert judgement. Experts are requested to weight the component of competitiveness index. (Number of experts: 100 experts).

2. *Cluster Analysis*

Cluster analysis is one of the analyses in the multivariate techniques which determine to grouped research objects based on its characteristics. Result from clustering analysis shows that there is one cluster that shows homogeneity and thus shows differences with other cluster. With Cluster analysis a group of research objects can be divided into several groups based on its similarity.

Cluster Variate is a group of variables describing characteristics used to compare objects in cluster analysis. Cluster analysis is the only multivariate technique that is not

estimate variety empirically, instead it uses variate that has been specified by researcher. Cluster analysis focuses on comparing objects based on their variate (not comparing the variate itself). Thus, the most important steps in Cluster analysis are defining variate. Cluster Analysis commonly used for taxonomy on Biology, psychological classification based on personality, market segmentation analysis, individual groups, etc.

We use the method of hierarchical cluster in this paper to classify countries into homogenous group based on indicators of competitiveness. This procedure attempts to identify relatively homogeneous groups of cases (or variables) based on selected characteristics, using an algorithm that starts with each case (or variable) in a separate cluster and combines clusters until only one is left. We can analyze raw variables or we can choose from a variety of standardizing transformations. Distance or similarity measures are generated by the Proximities procedure.

3.Revealed Comparative Advantage

There mainly exist two prominent theories of trade based on comparative advantage: the Ricardian theory and the Heckscher-Ohlin (H-O) theory. The Ricardian theory assumes that comparative advantage arises from differences in technology across countries while the H-O theory suggests that technologies are the same across countries. Instead, the H-O theory attributes comparative advantage to cost differences resulting from differences in factor prices across countries. In brief, the predictions of orthodox (classical) trade theories are based on the principle of comparative advantage which derives from relative price determination, i.e. differences in pre-trade relative prices across countries, underlined by supply and demand factors.

According to the H-O theory, a country's comparative advantage is determined by its relative factor scarcity (i.e. its factor endowment ratios, relative to the rest of the world or a set of countries). However, it is well known that measuring comparative advantage and testing the Heckscher-Ohlin (H-O) theory have some difficulties (Balassa, 1989: 42-4) since relative prices under autarky are not observable. Given this fact, Balassa (1965) proposes that it may not be necessary to include all constituents effecting country's comparative advantage. Instead, he suggests that comparative advantage is "revealed" by observed trade patterns, and in line with the theory, one needs pre-trade relative prices which are not observable. Thus, inferring comparative advantage from observed data is named "revealed" comparative advantage (RCA). In practice, this is a commonly accepted method to analysing trade data. Balassa (1965) derives an index (called the Balassa Index) that measures a country's comparative advantage. The Balassa index tries to identify whether a country has a "revealed" comparative advantage rather than to determine the underlying sources of comparative advantage. According to Balassa (1965), Revealed Comparative Advantage (RCA) are calculated by the formula below.

$$RCA_{ij} = \frac{(X_{ij} / X_{wj})}{(X_i / X_w)} \dots\dots\dots(2)$$

- X_{ij} = exports of country-i for commodity-j
- X_{wj} = world exports for commodity-j
- X_i = total exports of country-i
- X_w = total world exports

IV. RESULT AND ANALYSIS

4.1 Result of Competitiveness Index

4.1.1 Result of Aggregate Competitiveness Index

The result of aggregate competitiveness index is presented in the table below.

Table 17 : Aggregate Competitiveness Index 2006

Country	Aggregate Index (Simple Average)	Rank	GCI Rank
United States	0.7444	1	1
Japan	0.7319	2	5
Hongkong	0.7066	3	10
Euro Area	0.6569	4	7*
Singapore	0.6473	5	8
Korea, Rep of	0.6463	6	23
Malaysia	0.5337	7	19
China	0.4900	8	35
Brunei Darussalam	0.4601	9	na
Thailand	0.4313	10	28
Vietnam	0.3664	11	64
Philippines	0.3357	12	75
Indonesia	0.3006	13	54
Myanmar	0.2060	14	na
Cambodia	0.1832	15	106
Lao PDR	0.1193	16	na

*GCI rank for Euro countries represented by Germany

The results presented at the table are calculated using equal weight. United States of course is still in the first number in our calculation. Japan is also in the first rank for East Asia countries and Singapore is in the first rank in ASEAN countries. The lowest performer in East Asia and ASEAN is Lao PDR. Myanmar is in the 14th rank, below Indonesia and above Cambodia. Brunei Darussalam is in 9th rank, higher than Thailand and lower than China. There are some differences of ranking between our calculation and GCI. The differences exist especially for Korea, Malaysia, Indonesia, China, and Euro area. This difference is comes from the difference in component of competitiveness, where GCI include expert opinion survey, not only hard data. Other reason is not all hard data in GCI included in our calculation.

Table 18 :Aggregate Index Based on Expert Opinion Polling, 2006

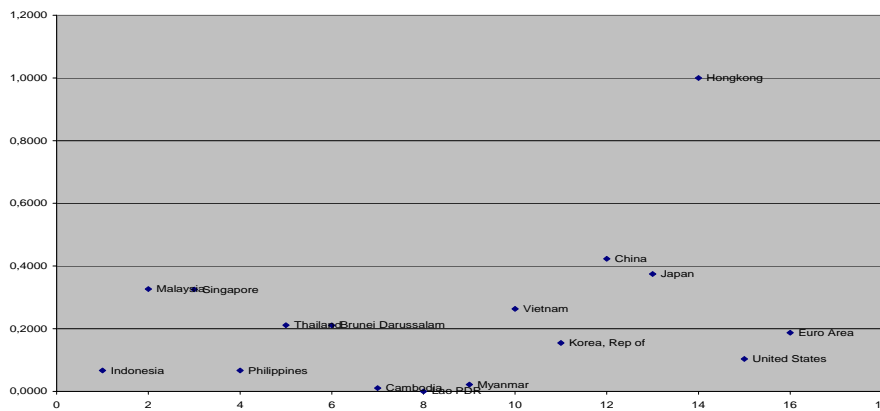
Country	Aggregate Index (Expert Polling)	Rank	GCI Rank
United States	0,7187	1	1
Hongkong	0,6648	2	10
Japan	0,6579	3	5
Euro Area	0,6197	4	7*
Korea, Rep of	0,5935	5	23
Singapore	0,5654	6	8

Malaysia	0,4594	7	19
China	0,4274	8	35
Brunei Darussalam	0,4048	9	na
Thailand	0,3966	10	28
Vietnam	0,3418	11	64
Philippines	0,3102	12	75
Indonesia	0,2538	13	54
Cambodia	0,1588	14	106
Myanmar	0,1442	15	na
Lao PDR	0,1125	16	na

We also present the result of aggregate competitiveness index with weighting by expert opinion polling. Generally the result is not far from the simple average. The differences exist for Hongkong, Japan, Korea, Singapore, Cambodia, and Myanmar. A different choice of weights might give a different overall ranking of countries. It is for the reason that we will focus on the sub-index in the analysis.

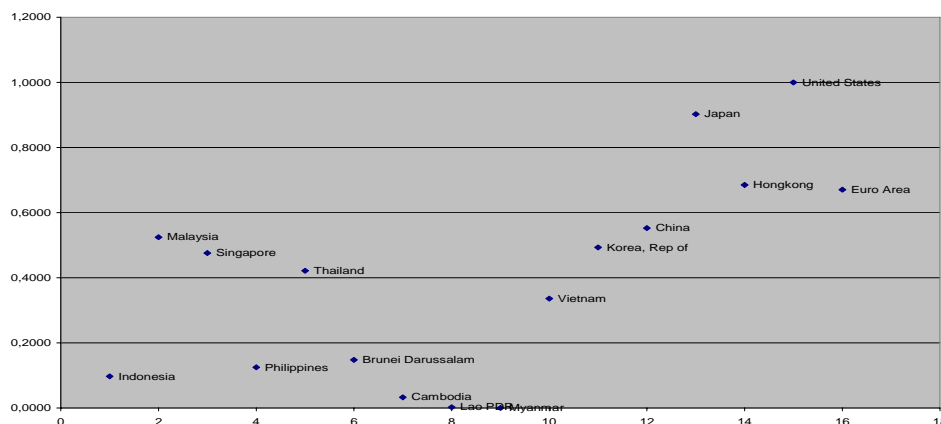
4.1.2 Result of Monetary Sector Index

Figure 14 : M2/GDP



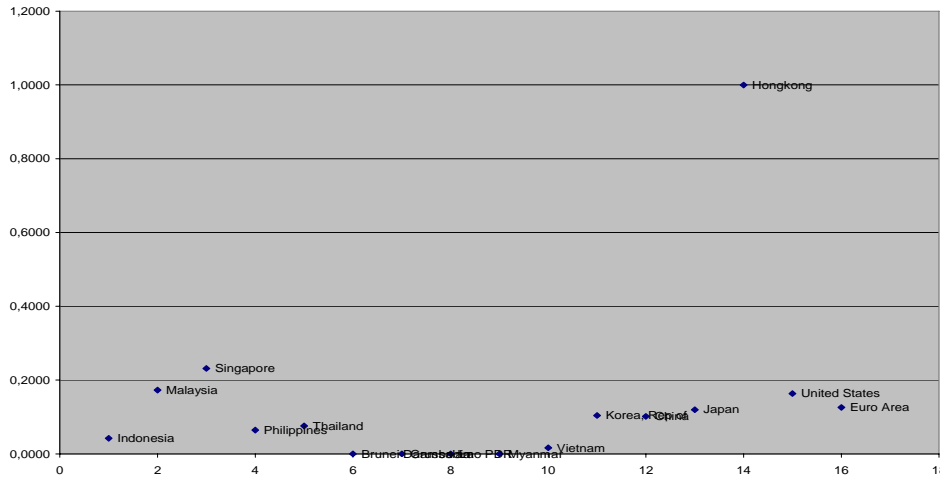
Hongkong is the best performer in degree of financial development (for the indicator M2/GDP). The lowest performer is Lao PDR. In M2/GDP ratio, Hongkong position is far from other East Asian countries and also benchmark countries (US and EU). It is not strange because Hongkong is a center of money and capital market in East Asia. Second rank in M2/GDP ratio is China. East Asia has a wide gap in ratio of M2/GDP. East Asia has Hongkong with very high M2/GDP ratio and also has Lao PDR, Cambodia, and Myanmar that have very low M2/GDP ratio.

Figure 15 : Private Credit Ratio



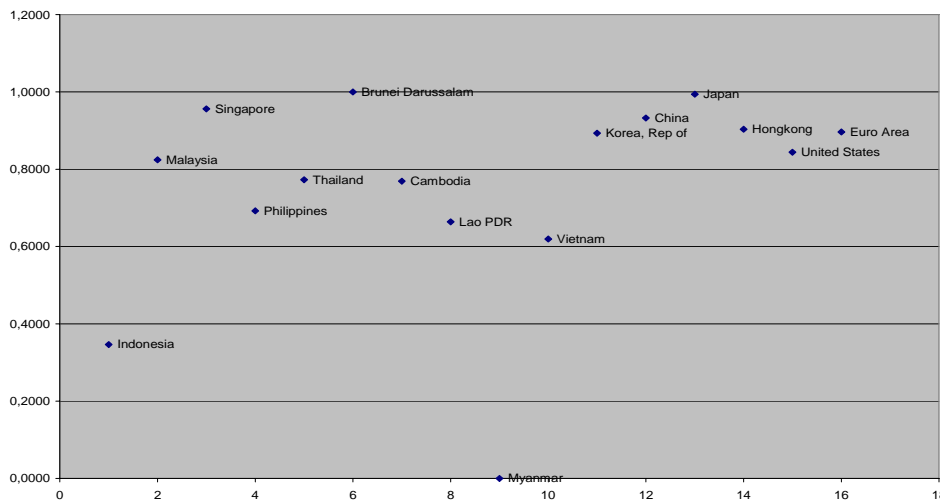
The best performer in Private Credit Ratio (PCR) is United States and the lowest performer is Myanmar. Japan, Hongkong, and Euro Area are also have high PCR.

Figure 16: Capital Market Capitalization



Hongkong has the highest capital market capitalization in East Asia, even in the world for the year 2006. Hongkong leads the world in the financial market pillar. It is also supported by the study of Porter et al (2007). According to the study, Hongkong is first in the world on legal rights, and third in the financial market sophistication, strength of investor protection, and financing through local equity market. The second position is hold by Singapore. Like M2/GDP ratio, East Asia also has Myanmar, Lao PDR, and Cambodia that have underdeveloped capital market.

Figure 17: Price Stability

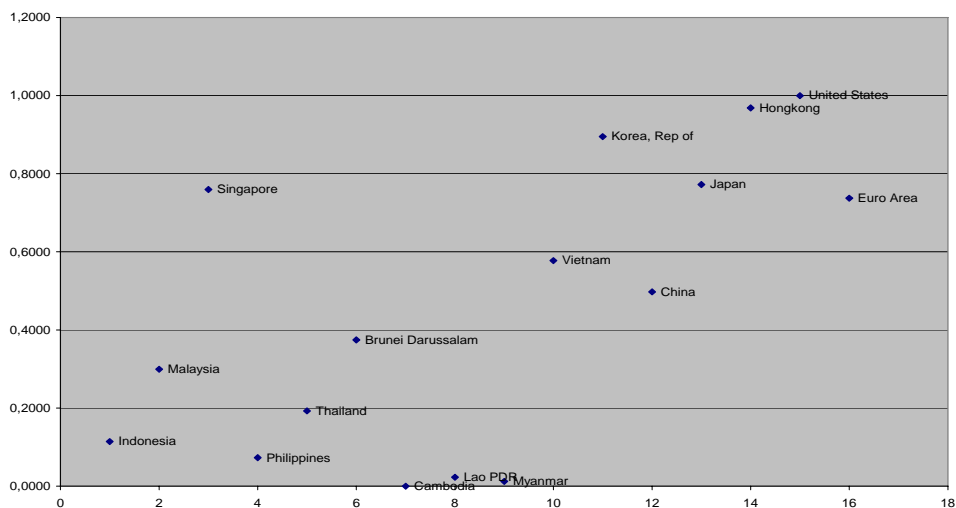


Brunei Darussalam and Japan are the best performer for price stability, on the other hand Myanmar and Indonesia is the lowest performer. From the graph there are three groups in terms of the degree of price stability. Groups of countries with high price stability are Brunei Darussalam, Japan, Singapore, China, Korea, Hongkong, Malaysia, Euro Area, and United States. Second group is groups of countries with moderate price stability, including Thailand, Cambodia, Philippines, Lao PDR, and Vietnam. The third group is groups of countries with low price stability, including Indonesia and Myanmar.

For the four variables represents monetary sector index, we can conclude that some of East Asia countries (Hong Kong, Japan, Singapore, Malaysia, Korea) have good performance compared to benchmark countries (US and EU). On the other hand, some of East Asia countries have low index and wide gap with best performer in East Asia and with benchmark countries (US and EU). The countries are Indonesia and transition countries such as Lao PDR, Myanmar, Cambodia. This is a challenge for policy maker in such countries to narrow the gap and to increase the performance in monetary sector.

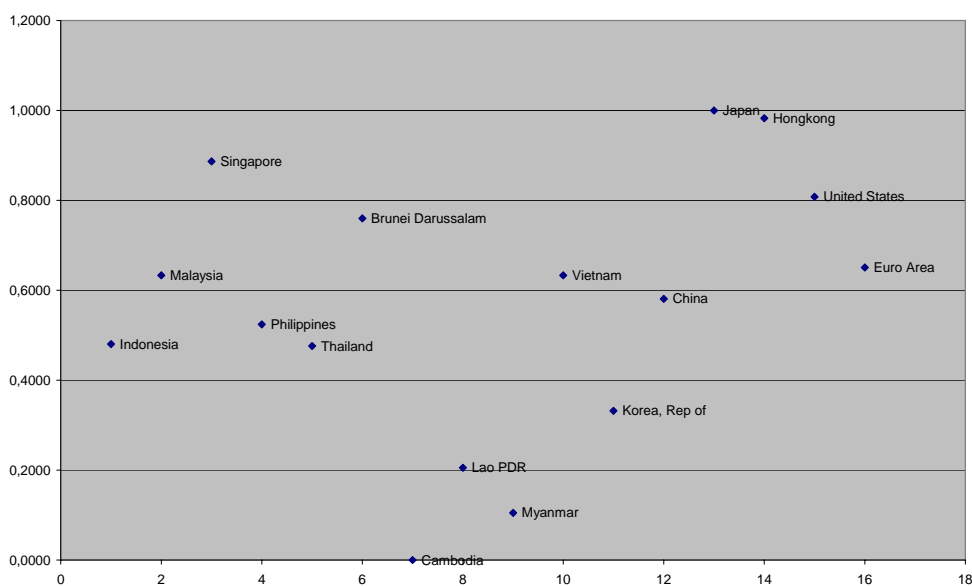
4.1.3 Result of Real Sector Index

Figure 18 : Telephone Lines



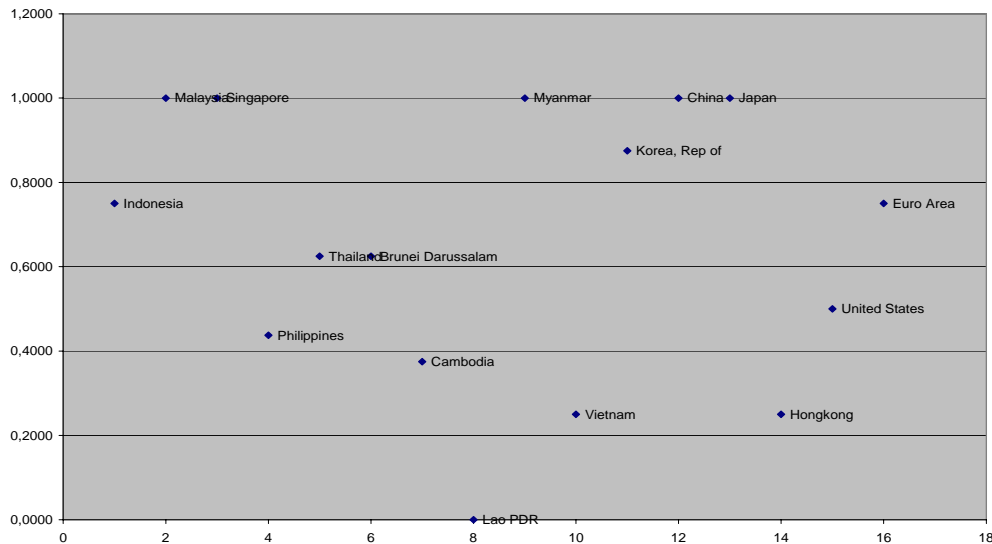
United States is the best performer for telephone lines and Cambodia is the lowest performer. Hongkong is second best performer in number of telephone lines followed by Korea in the third position.

Figure 19 : Life Expectancy



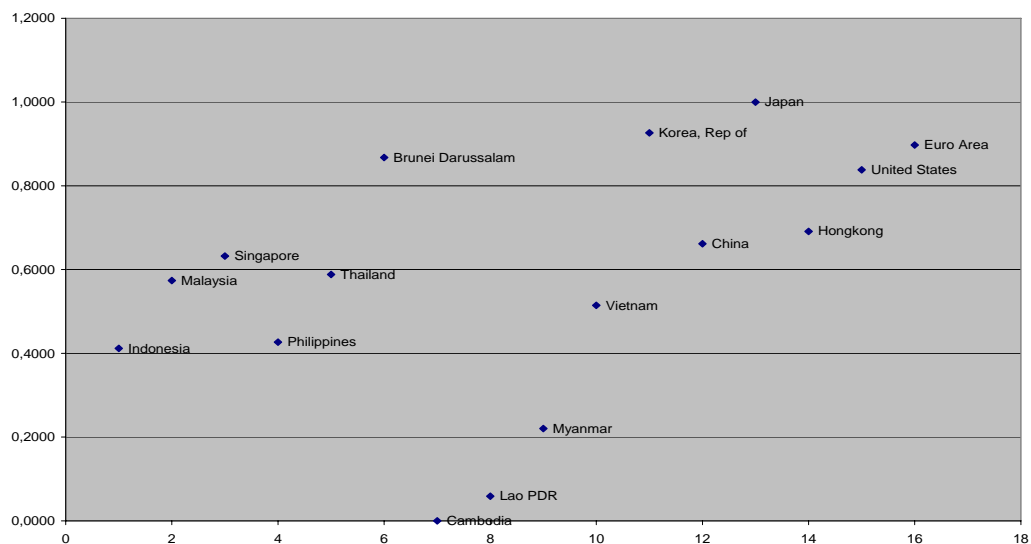
Japan is the best performer in life expectancy and Cambodia is the lowest performer. Japan, Hongkong, Singapore and United States have life expectancy higher than average. On the other hand, Cambodia, Myanmar, and Lao PDR have life expectancy lower than average.

Figure 20 : Primary Enrollment



Malaysia, Singapore, Myanmar, China, and Japan have achieved 100% of primary enrollment. It is rather surprisingly that Myanmar have 100% of primary enrollment. It is a good point for primary education performance in Myanmar. In contrast, the lowest performer in primary enrollment is Lao PDR.

Figure 21 : Secondary Enrollment



Japan is the best performer in secondary enrollment and Cambodia is the lowest performer. But for tertiary enrollment, Japan is not the best performer. The best performer is Korea. Korea is well known for its strong position in higher education and training. On the higher education and training, Korea has 1st ranks in the world (tertiary enrollment). In contrast, Cambodia is still the lowest performer in tertiary enrollment.

Figure 22 : Tertiary Enrollment

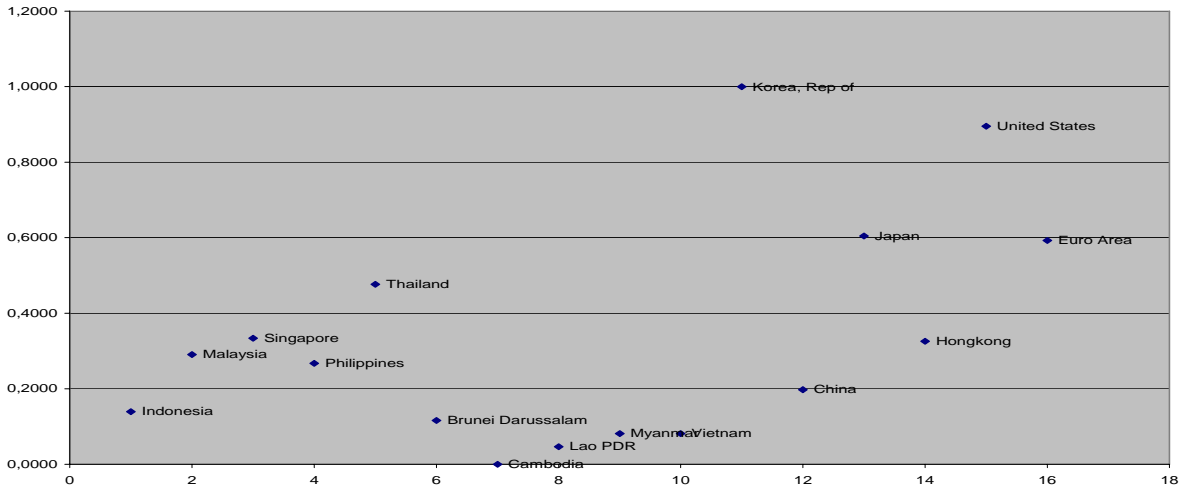
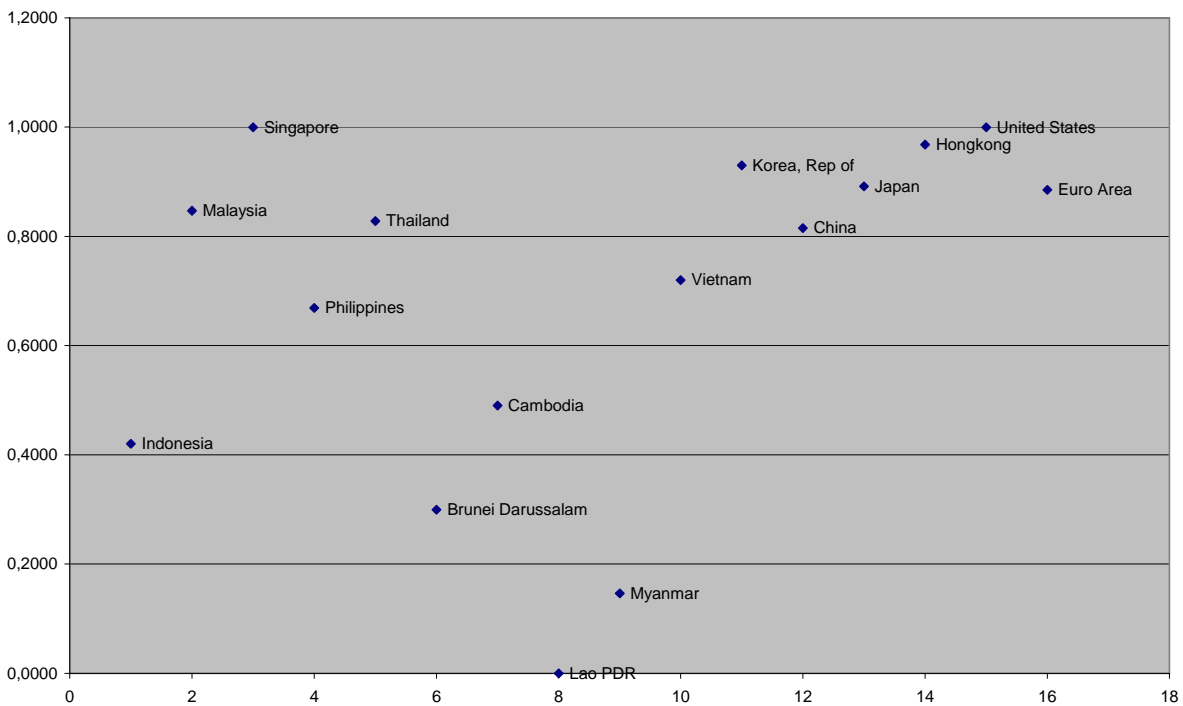
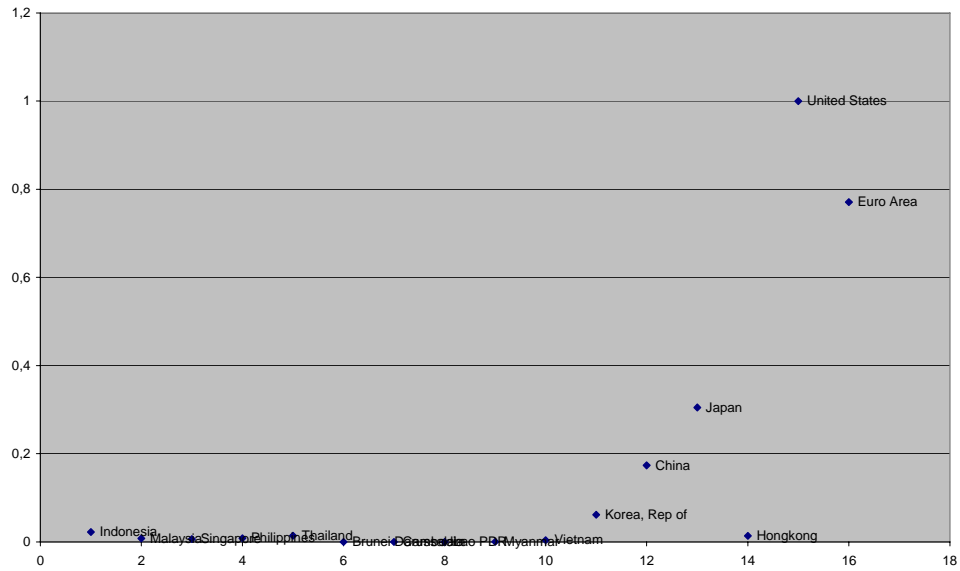


Figure 23 : Time Required to Start Business



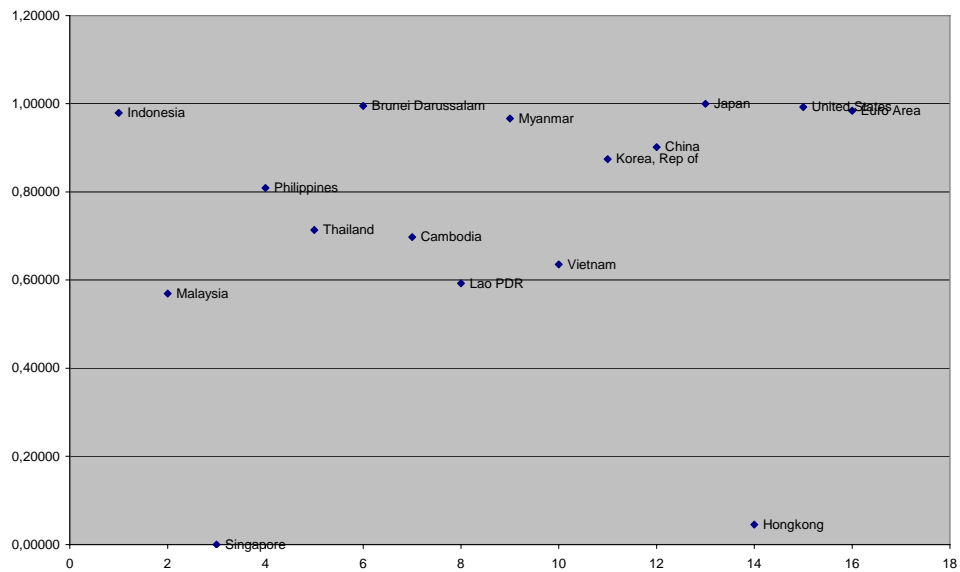
United States and Singapore are the best performers in time to start business and Lao PDR has longest time to start business.

Figure 24 : Domestic Market Size : GDP-Export+Import



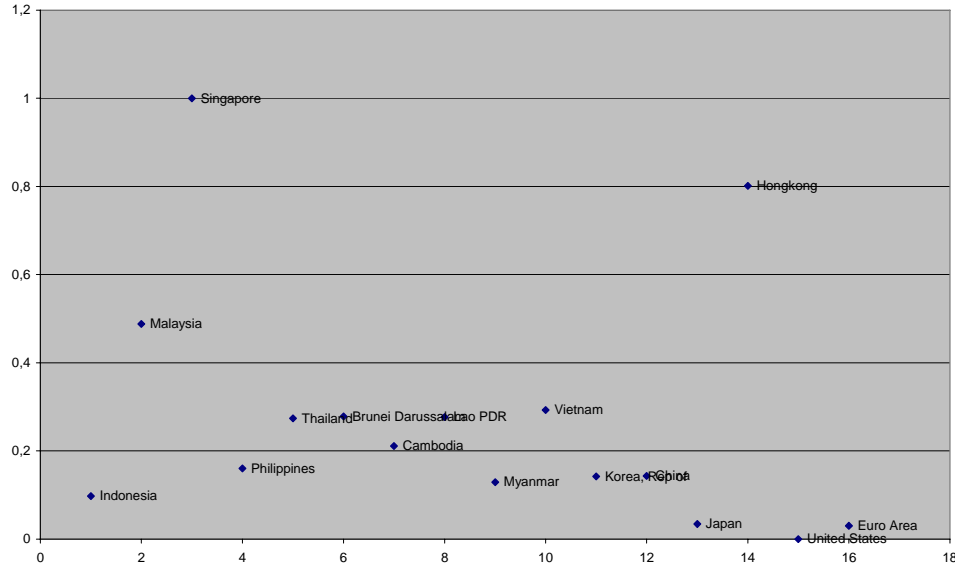
United States and Euro Area are best performers in domestic market size and Brunei Darussalam is the lowest.

Figure 25 : Import/GDP



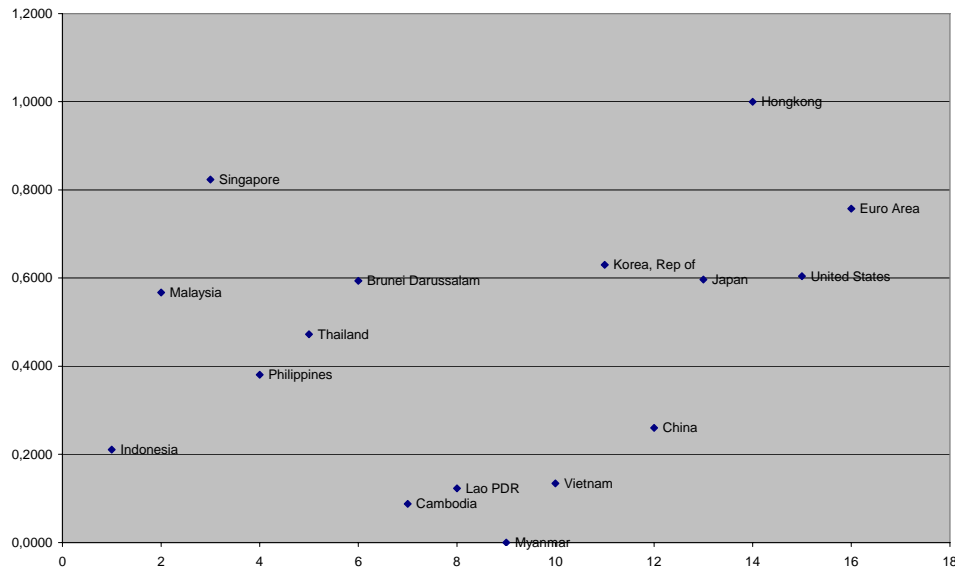
Brunei Darussalam is the best performer in terms of domestic competition, shown by low import to GDP. Contrast condition is hold for Singapore.

Figure 26: Export/GDP



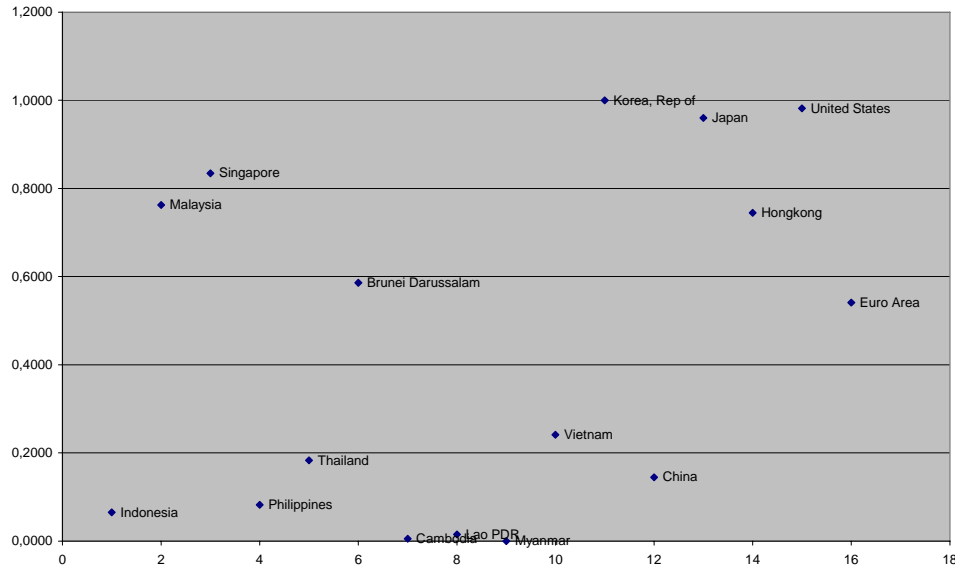
Singapore is the best performer in Export/GDP ratio and United States is the lowest. Ratio of export to GDP is the classical comparative disadvantage of United States.

Figure 27 : Cellular Telephones



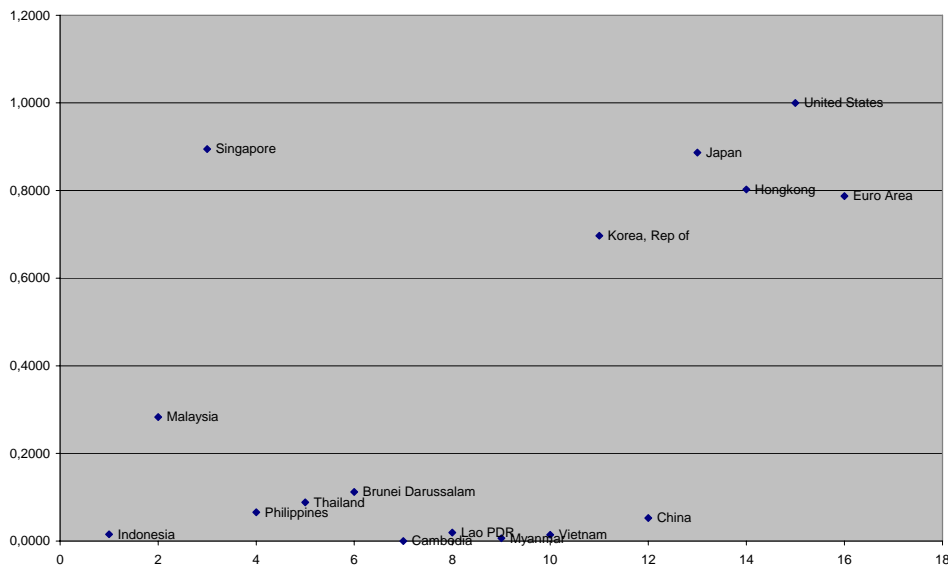
Hongkong has highest cellular telephone subscribers and Myanmar has the lowest subscribers. Hongkong is followed by Singapore in second position. All transition countries (CLMV) have low cellular telephone subscribers.

Figure 28 : Internet user



Korea is the best performer in internet users and Myanmar is the lowest performer. Indonesia, Philippines, Cambodia, Lao PDR, and Myanmar are the countries with low internet user.

Figure 29 : PC Ownership



United States is the best performer in PC ownership and Myanmar is the lowest. Thailand, Indonesia, Philippines, Cambodia, Lao PDR, and Myanmar are the countries with low internet user.

Policy Learned From The Result of the Index

Policy learned described here are especially for the East Asia countries in the lowest rank position (Indonesia, Cambodia, Lao PDR, and Myanmar). To produce policy learned we used the method of benchmarking to highest rank countries in the world, United States.

1.Indonesia

Figure 30 : Competitiveness map of Indonesia compared to United States

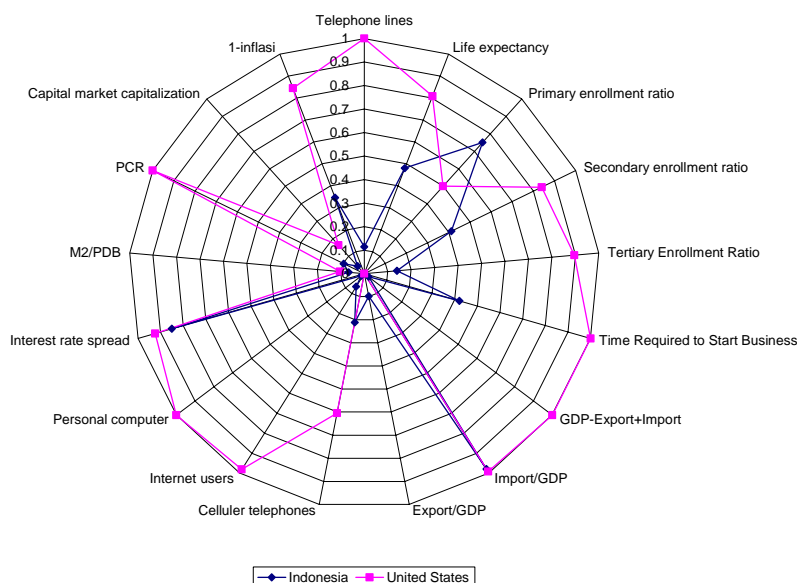


Table 19 : Policy Learned for Indonesia

Sector	Variables	Gap Analysis	Policy recommendation	Responsible institutions
Real Sector	Telephone lines	To increase number of telephone lines	Enlarge the coverage of telephone lines network especially to isolated area	Information and Communication Department
	Life expectancy	To increase life expectancy	Improving health, environment quality	Health Department, Environment Department
	Primary enrolment ratio	To increase primary enrolment ratio	Increase the availability of free public school	National Education Department
	Secondary enrolment ratio	To increase secondary enrolment ratio	Increase the availability of free public school	National Education Department
	Tertiary Enrolment Ratio	To increase tertiary enrolment ratio	Increase the number of tertiary school with price that can be obtained by large coverage	National Education Department
	Time Required to Start Business	To cut time required to start business	Application of One Stop Services, e-government, simplification of procedures	Investment Bodies, state and local government
	GDP-Export+Import	To increase domestic market size	Increase the size of component of domestic market size (consumption, investment, government spending)	Nations responsibility
	Import/GDP	To decrease import to GDP ratio	To decrease import to GDP ratio (in relative terms), in terms of domestic competition criterion	Trade ministry
	Export/GDP	To increase export to GDP ratio	Export promotion, upgrade export infrastructure, product innovation	Trade ministry

	Cellular telephones	To increase cellular telephones users and coverage	Deregulation in cellular telephones industries, favourable competition policy in industries	Information and Communication Department, Industry Department, Technology and Research Ministry
	Internet users	To increase internet users	Increase the availability of internet infrastructure and access especially in isolating area	Information and Communication Department, Technology and Research Ministry
	Personal computer	To increase PC ownership and utilization	To make computer available in lower price (by import from producer that offer lower price)	Information and Communication Department, I Technology and Research Ministry, Trade ministry, Private sector
Monetary Sector	Interest rate spread	To decrease interest rate spread	Increase the efficiency of banking sector and financial market	Banking, Central Bank, Capital market authority
	M2/PDB	To increase financial deepening	Increase the banking product diversification, increase monetization, increase banking credibility, increase the variety in monetary instruments	Banking and Central Bank
	PCR	To increase private credit ratio	Increase share of private credit to total credit, reducing asymmetric information in credit market	Banking and Central Bank
	Capital market capitalization	To enlarge capital market base	Increase the rating, decrease the country risk premium, financial education	Capital market authority
	1-inflasi	To control inflation	Control the source of inflation (demand and supply shocks)	Government and Central Bank

2. Cambodia, Lao PDR, Myanmar

Figure 31 : Competitiveness map of Cambodia compared to United States

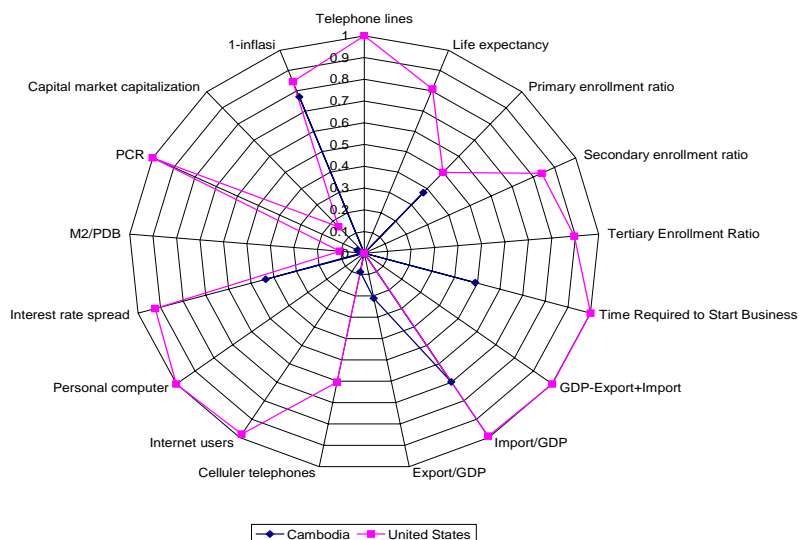


Figure 32 : Competitiveness map of Lao PDR compared to United States

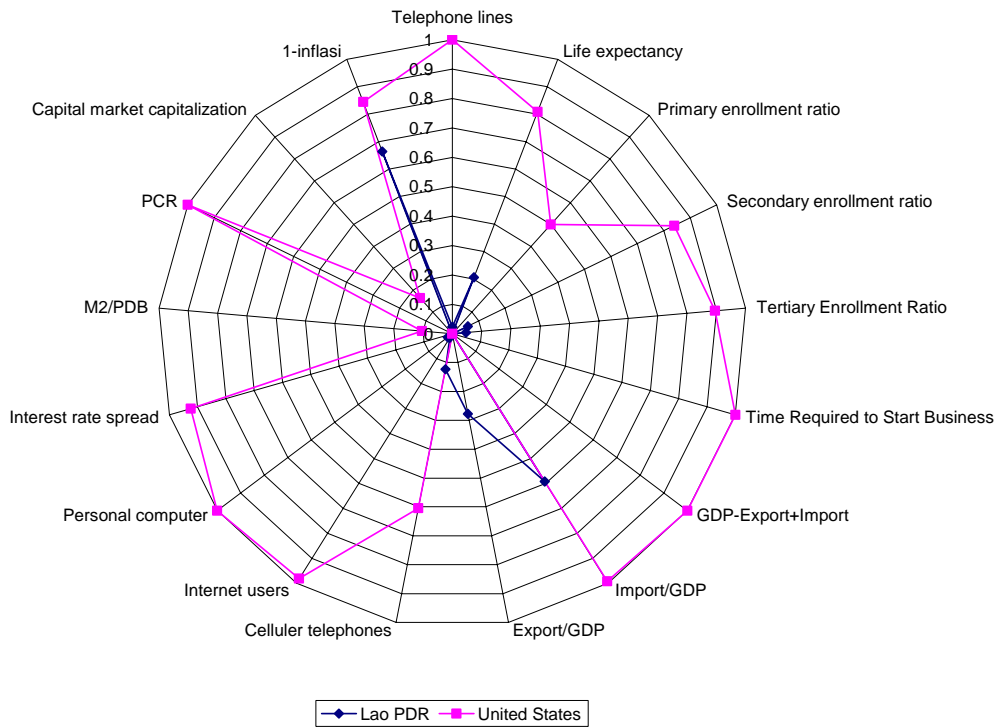


Figure 33 : Competitiveness map of Myanmar compared to United States

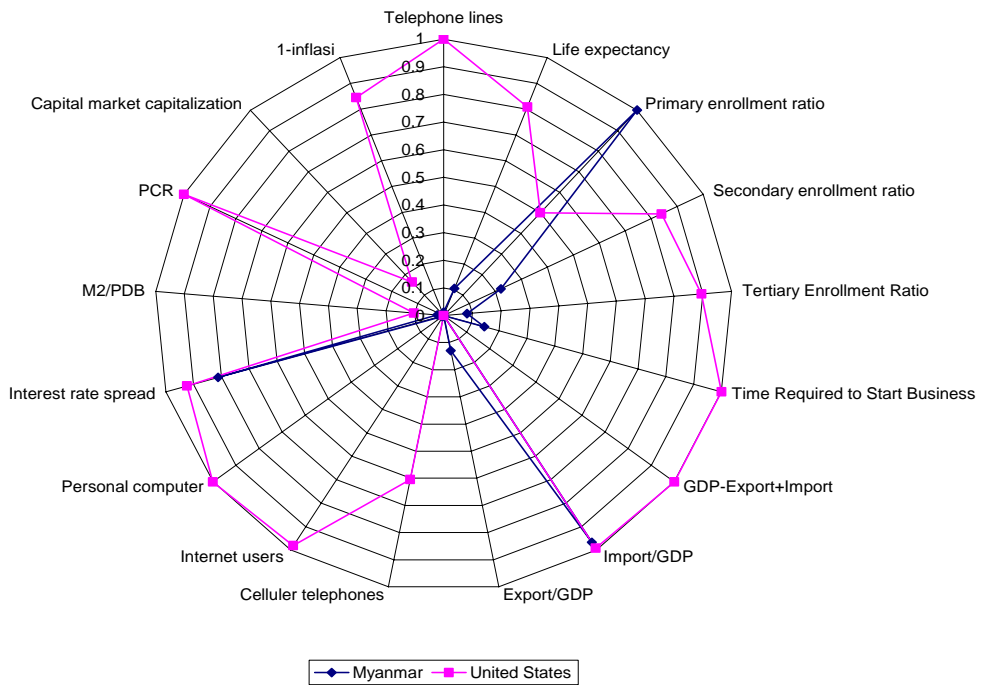


Table 20 : Policy learned for Cambodia, Lao PDR, Myanmar

Sector	Variables	Gap Analysis	Policy recommendation	Responsible institutions
Real Sector	Telephone lines	To increase number of telephone lines	Increase the availability of telephone infrastructure, promote the benefit of using telephone, deregulation in telecommunication sectors	Information and Communication Department
	Life expectancy	To increase life expectancy	Improve health, decrease mortality rate, increase national security	Health Department, National Security Department
	Primary enrolment ratio	To increase primary enrolment ratio	Increase the availability of private and public school, primary study obligation for citizen	National Education Department
	Secondary enrolment ratio	To increase secondary enrolment ratio	Increase the availability of private and public school, increase the number of teachers in secondary level	National Education Department
	Tertiary Enrolment Ratio	To increase tertiary enrolment ratio	Increase the availability of private and public school, increase the number of teachers in tertiary level, provide scholarships for students and teachers	National Education Department
	Time Required to Start Business	To cut time required to start business	Strengthen the capacity and role of capital and investment bodies, Application of One Stop Services, simplification of procedures	Investment Bodies, state and local government
	GDP-Export+Import	To increase domestic market size	Increase the size of component of domestic market size (consumption, investment, government spending)	Nations responsibility
	Import/GDP	To decrease import to GDP ratio	To decrease import to GDP ratio (in relative terms), in terms of domestic competition criterion	Trade ministry
	Export/GDP	To increase export to GDP ratio	Export promotion, upgrade export infrastructure, efforts to fulfil certification standard for export, mapping competitive advantage of Cambodia's exports	Trade ministry
	Cellular telephones	To increase cellular telephones users and coverage	Deregulation in cellular telephones industries, invite investor in cellular telephones industries	Information and Communication Department, Industry Department, Technology and Research Ministry
	Internet users	To increase internet users	Increase the availability of internet infrastructure, increase the internet access to the public	Information and Communication Department, Technology and Research Ministry
	Personal computer	To increase PC ownership and utilization	To make computer available in lower price (by import from producer that offer lower price)	Information and Communication Department, I Technology and Research Ministry, Trade ministry, Private sector
Monetary Sector	Interest rate spread	To decrease interest rate spread	Increase the efficiency of banking sector and financial market, decrease country risk premium, increase the capacity of banking sector	Banking, Central Bank, Capital market authority

M2/PDB	To increase financial deepening	Increase monetization, increase the banking product diversification, increase the variety in monetary instruments	Banking and Central Bank
PCR	To increase private credit ratio	Increase share of private credit to total credit, reducing asymmetric information in credit market	Banking and Central Bank
Capital market capitalization	To develop capital market	Benchmarking to other Asian countries in developing capital market, identify private sector financing needs	Capital market authority
1-inflasi	To control inflation	Control the source of inflation (demand and supply shocks), apply monetary policy independence	Government and Central Bank

The above results of policy recommendation are relevant with the results of strategic actions to improve ASEAN's competitiveness from Akrasanee (2003). He recommended the following actions that might be useful and relevant for these studies.

1. Fair competition regime.

For any economy to be competitive a necessary condition is to have a fair competition regime. This means :

- No barriers to entry ;
- Strict and transparent ruling against collusion, oligopoly, monopoly, monopsony ; and
- Avoiding price intervention.

Such competition regime would create condition for the “survival of the fittest ” and / or the “ survival of the fastest ”. Under such regime most enterprises would be able to compete with similar enterprises elsewhere.

2. Stability enhancing fiscal and monetary policies.

The most conducive environment for enterprises to compete is economic stability, as reflected in the prices of products and factors of production, and in the exchange rate. Fiscal and monetary policies should have economic stability as their main objective, which could be achieved by :medium term fiscal budgetary balances ; and inflation targeted money supply and exchange rate policies.

3. Efficient money and capital market.

In a market economy the cost of capital and accessibility to capital is one of the most important factor determining the viability of its enterprises. The availability of capital could be through bank – based lending, or capital market – based fund raising.

There is no clear- cut superiority between the two systems, in terms of efficiency. What is important is the investor protection regime which minimizes risks which, in turn, minimize the cost of capital. Such a regime is characterized by :

- Project – based rather than connection – based lending ;
- Transparency and accountability – based capital market ; and
- Efficient judiciary and bankruptcy system.

4. Market friendly physical and institutional infrastructure.

Enterprises need utilities. Enterprises can only be as efficient as the utilities allow them to be. As most utilities are under state control and supervision in one way or another, it is important that the utilities are provided efficiently. To ensure efficiency, the utility providers should be corporatized and / or privatized. With respect to institutional infrastructure, the most important aspect is that the approval process must ensure transparency and automaticity.

5. Utilizing information / computation technology and bio – technology.

The new business environment is characterized by the rapid progress of information and computation technology (ICT), and its application to business and everyday life. This ICT revolution is spreading and creating e – business, ubiquitous computing, cognitive devices, and computable biology, all of which have been transforming the way of life and how business is carried out.

- To allow enterprises the benefit of the ICT revolution, a country should :
- Liberalize telecommunication sector, with proper regulatory regime ;
- Promote broadband facilities ; and
- Promote facilities for innovation, such as science parks.

6. Commercializing and securitizing intellectual property rights (IPRs).

A good IPR regime is important for a productivity / creativity driven economy. Such a regime can be achieved by :

- Encouraging registration of patents, trademarks and copyrights ;
- Full protection of IPRs ;
- Venture capital for business venture with IPRs ; and
- Making IPRs collateralizable.

7. Comprehensive promotional scheme for SMEs.

Under the present international business environment enterprises can either be large global enterprises or SMEs with linkages to global enterprise, or SMEs with their own specialization / product differentiation.

SMEs are therefore very important. They need a comprehensive promotional scheme including: SMEs financing; center(s) for development of SMEs ; and promotion of cluster, logistics, etc.

8. Promoting entrepreneurial society.

For an economy to be competitive, it needs entrepreneurs, because it is the entrepreneurs who compete. To create an entrepreneurial society, the followings are some of the prerequisites :

- Curriculum with self-employment contents, plus internship ;
- Training for aspiring entrepreneurs ;
- Risk-neutral legal system (as against risk averting) ; and
- Insurance and security system for the self-employed.

9. Seeking regional / international strategic alliances.

The areas in which ASEAN can benefit together include both trade and finance. For trade, ASEAN should utilize free trade agreements (FTAs) and regional trading agreements (RTAs) for competitive advantages. Then ASEAN should pursue bilateral FTAs with China, Japan, India, the US and the EU.

In finance ASEAN should enter into financial arrangements to minimize the volatility impact of global finance. These schemes are: currency swap arrangements, Asian bonds ; and financial monitoring and surveillance system.

10. Promoting cross country clustering for sectors with revealed comparative advantage.

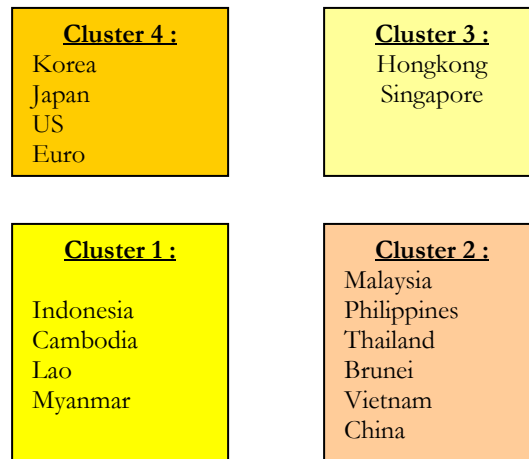
Based on trade statistics, ASEAN seems to have revealed comparative advantage in the sectors such as electronics, food processing, wood and rubber products, and personal care products. The sectors can become more efficient if cross – country clustering is facilitated. This can be achieved by:

- Broadening and deepening AFTA, to include services ;
- Facilitating flows of factors of production ; and
- Providing physical and institutional infrastructure.

4.1.4 Result of Clustering

Using hierarcical clustering, we get four clusters based on the variables in competitiveness index. Cluster 1 consists of Indonesia, Cambodia, Lao, and Myanmar. Cluster 2 consists of Malaysia, Philippines, Thailand, Brunei Darussalam, and Vietnam. Cluster 3 consists only 2 countries: Hongkong and Singapore. Finally, cluster 4 consists of Korea, Japan, US, and Euro Area. It can be concluded that only Korea and Japan that in the same cluster with benchmark countries (US and EU).

Figure 33 : Cluster Output



Unlike some regions, where countries cluster behind one or two top performers, East Asian economies are spread throughout the full range of the index (according to competitiveness index). The rankings show that most ASEAN countries are at the mediam to low level of competitiveness. Furthermore, clustering results showed that all members of East Asia countries has been spread out in all cluster. It described heterogeneous competitiveness in East Asia. Further East Asia integration is expected to narrow the gap between East Asia countries and to reduce the difference in economic performance. The basic idea is that collaboration can enhance competitiveness.

Countries in cluster 1 must do hard efforts to join cluster 2, and also the countries in cluster 2 must increase the performance to become cluster 3, and the countries in cluster 3 should join cluster 4. After this changes, the countries in cluster 3 expected to become cluster 2, etc until all countries in East Asia are in the same cluster with high performance. But of course it is not automatic process. It's need hard effort from policy maker and society in East Asia countries. By clustering analysis, prioritization to increase competitiveness in each cluster can be made. Innovation and business sophistication is crucial for the top-tier countries (highest

cluster); improving the quality of human capital and market efficiency provides a basis for development and growth for the middle cluster countries; and factors such as improving basic education, health systems and infrastructure are critical for the lowest cluster economies.

4.2 Global Competitiveness Index (GCI) and Productivity

According to Porter, Sala-i-Martin, and Schwab (2007), competitiveness is the set of institutions, policies, and factors that determine the level of productivity of the country. The level of productivity, in turn, sets the sustainable level of prosperity that can be earned by an economy. In other words, more competitive economies tend to be able to produce higher level of income for their citizens. To prove the relationship between competitiveness and prosperity, we regress income per capita with GCI index. The results of panel regression are as followed.

Dependent Variable: LOG(YCAP?)

Method: GLS (Cross Section Weights), Included observations: 8

Number of cross-sections used: 13, Total panel (balanced) observations: 104

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCI?	0.020371	0.011019	1.848764	0.0678
Fixed Effects				
_JAPAN--C	21.63791			
_SINGAPORE--C	21.30394			
_KOREA--C	20.74559			
_THAILAND--C	21.51753			
_CHINA--C	21.00824			
_INDONESIA--C	22.06646			
_MALAYSIA--C	21.71164			
_VIETNAM--C	21.33046			
_PHILIPPINES--C	22.47407			
_HONGKONG--C	21.26092			
_US--C	21.66898			
_GERMANY--C	21.00602			
_FRANCE--C	21.56221			
Weighted Statistics				
R-squared	0.999868	Mean dependent var	62.24725	
Adjusted R-squared	0.999849	S.D. dependent var	45.81388	
S.E. of regression	0.562923	Sum squared resid	28.51939	
Durbin-Watson stat	1.875862			
Unweighted Statistics				
R-squared	0.271576	Mean dependent var	21.57074	
Adjusted R-squared	0.166359	S.D. dependent var	0.827799	
S.E. of regression	0.755813	Sum squared resid	51.41286	
Durbin-Watson stat	2.229847			

According to the results of regression, there is empirical evidence of positive and significant relationship between competitiveness index and nation's prosperity that is represented by income per capita. After prove the evidence, the relationship of competitiveness and income per capita for year 1999-2007 are plotted below. From the figure we can conclude that there has been a tendency of convergence in relationship between competitiveness and income per capita. The scattered of group of countries more spread out before 2006, and more converge after 2006.

Figure 34 : GCI and Income Per Capita in 1999

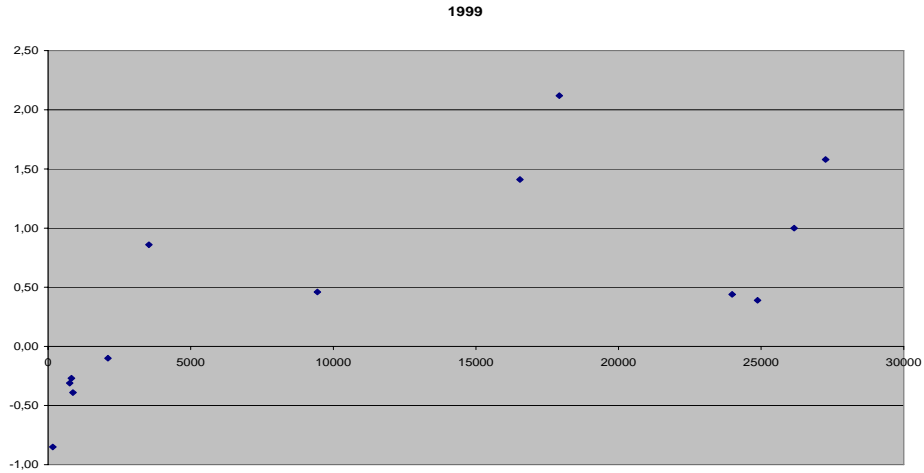


Figure 35 : GCI and Income Per Capita in 2001

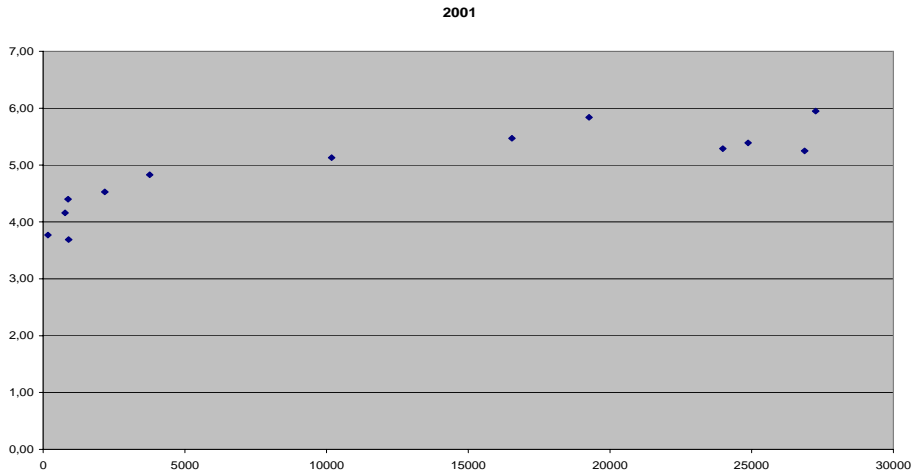


Figure 36: GCI and Income Per Capita in 2006

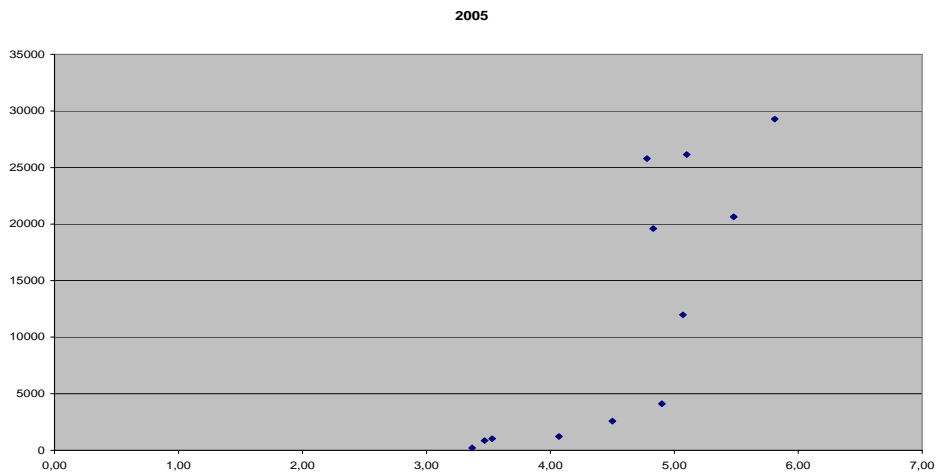
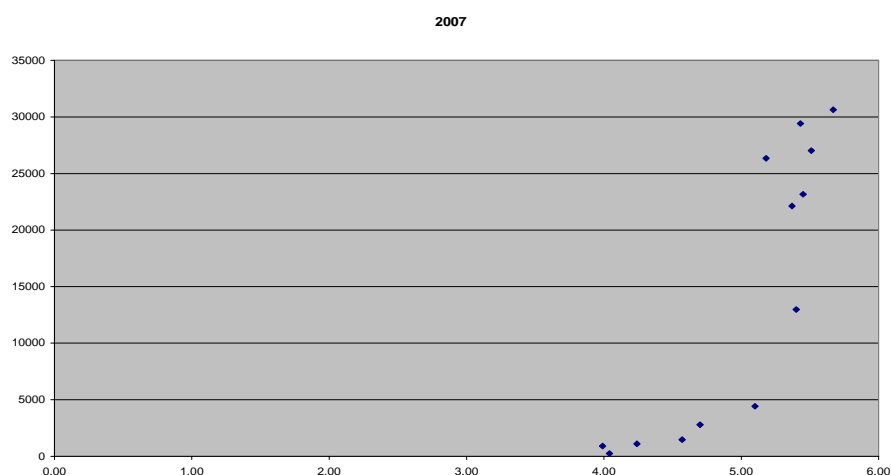


Figure 37: GCI and Income Per Capita in 2007



4.3 Result and Analysis of Real Sector Competitiveness using *Revealed Comparative Advantage (RCA)*

4.3.1 Comparison between Countries

In general (excluding South Korea and Singapore) East Asian countries have high Revealed Comparative Advantages (RCA) in the world for these following products: headgear and parts thereof (HS 65); lead and articles thereof (HS 78); bird skin, feathers, artificial flowers, human hair (HS 67); animal, vegetable fats and oils, cleavage products, etc (HS 15); as well as products of animal origin, nes (HS 5).

The tables also showed that East Asia's main Revealed Comparative Disadvantages (RCD) includes these products: wood, articles of wood, wood charcoal (HS 44); railway, tramway locomotives, rolling stock, equipment (HS 86) products; leather products (HS 41); as well as pulp of wood, fibrous cellulosic material, waste etc (HS 47).

1. People's Republic of China (PRC)

Throughout 1999-2006, compared to the world, PRC had main Revealed Comparative Advantage (RCA) for the following products: headgear and parts thereof (HS 65); manufactures of plaiting material, basketwork, etc (HS 46); and articles of apparel, accessories, knit or crochet (HS 61).

On the other hand, PRC's Revealed Comparative Disadvantage (RCD) compared with the world mainly includes: pulp of wood, fibrous cellulosic material, waste, etc products (HS 47), and raw hides and skins (other than fur skins) and leather products (HS 41).

2. Hong Kong, China

With the same time span, compared with the world, Hong Kong shows RCA for 3 (three) products, namely: bird skin, feathers, artificial flowers, human hair (HS 67); headgear and parts thereof (HS 65); as well as lead and articles thereof (HS 78).

The RCD, on the other hand, showed mainly by: tanning, dyeing extracts, tannins, derives, pigments etc (HS 32) products; railway, tramway locomotives, rolling stock, equipment (HS 86) products; fertilizers (HS 31) products; and live animals (HS 1) products.

3. Indonesia

In 1999-2006, Indonesia's RCA in the world were showed by the following products: animal, vegetable fats and oils, cleavage products, etc (HS 15); headgear and parts thereof (HS 65); soaps, lubricants, waxes, candles, modeling pastes (HS 34); as well as fish, crustaceans, mollusks, aquatic invertebrates nes (HS 3).

While, RCD found in the following products: raw hides and skins (other than furskins) and leather (HS 41); furniture, lighting, signs, prefabricated buildings (HS 94); plastics and articles thereof (HS 39); as well as miscellaneous articles of base metal (HS 83).

4. Japan

Throughout 1999-2006, Japan RCA in the world covered these products: lead and articles thereof (HS 78), as well as photographic or cinematographic goods (HS 37).

While, the RCD were found in: beverages, spirits and vinegar (HS 22) products; meat and edible meat offal (HS 2) products; electrical, electronic equipment (HS 85) products; dairy products, eggs, honey, edible animal product nes (HS 4) product; and also wood and articles of wood, wood charcoal (HS 46) products.

5. Malaysia

Throughout 1999-2006, Malaysia's RCA in the world was mainly in the products of animal, vegetable fats and oils, cleavage products, etc (HS 15) products. In addition to that, RCA also showed by products of animal origin, nes (HS 5); tobacco and manufactured tobacco substitutes (HS 24); electrical, electronic equipment (HS 85); wood, articles of wood, wood charcoal (HS 44); and rubber and articles thereof (HS 40).

In the other hand, Malaysia's showed RCD in the world, which mainly covered products such as: pulp of wood, fibrous cellulosic material, waste etc (HS 47); salt, sulphur, earth, stone, plaster, lime and cement (HS 25); railway, tramway locomotives, rolling stock, equipment (HS 86); wood and articles of wood, wood charcoal (HS 44); as well as meat and edible meat offal (HS 2).

6. The Philippines

The Philippines RCA's in the world mainly consists of: products of animal origin, nes (HS 5), manufactures of plaiting material, basketwork, etc (HS 46), aluminum and articles thereof (HS 78).

While the RCDs mainly includes of: railway, tramway locomotives, rolling stock, equipment (HS 86) products; tanning, dyeing extracts, tannins, derivs., pigments etc (HS 41) products; raw hides and skins (other than furskins) and leather (HS 41) products; miscellaneous edible preparations (HS 21) products; photographic or cinematographic goods (HS 37) products; meat and edible meat offal (HS 2) products; and, wood and articles of wood, wood charcoal (HS 44) products.

7. Republic of Korea (ROK)

South Korea's RCA in the world were primarily come from the following products: ships, boats and other floating structures (HS 89), and manmade filaments (HS 54).

On the contrary, country's RCDs primarily covered these products: beverages, spirits and vinegar (HS 22); live animals (HS 1); inorganic chemicals, precious metal compound, isotopes (HS 28); and, wood and articles of wood, wood charcoal (HS 44).

8. Singapore

In 1999-2006, Singapore RCA's in the world were on the following products: electrical, electronic equipment (HS 85); milling products, malt, starches, inulin, wheat gluten (HS 11); and, vegetable plaiting materials, vegetable products nes (HS 14).

RCDs on the other hand, were mainly found in these products: mineral fuels, oils, distillation products, etc (HS 27); fertilizers (HS 31); railway, tramway locomotives, rolling stock, equipment (HS 86); live animals (HS 1); meat and edible meat offal (HS 2); bird skin, feathers, artificial flowers, human hair (HS 67); wood and articles of wood, wood charcoal (HS 44); and finally, ores, slag and ash (HS 26).

9. Thailand

Thailand's RCAs in the world throughout 1999-2006 were mainly on these products: products of animal origin, nes (HS 5); lead and articles thereof (HS 78); fish, crustaceans, mollusks, aquatic invertebrates nes (HS 3); rubber and articles thereof (HS 40); as well as, manmade staple fibres (HS 55).

On the other hand, Thailand's RCDs were mainly found in these sectors: railway, tramway locomotives, rolling stock, equipment (HS 86); tanning, dyeing extracts, tannins, derivs, pigments etc (HS 32); miscellaneous edible preparations (HS 21); and, wood and articles of wood, wood charcoal (HS 44).

10. Viet Nam

Viet Nam RCAs in the world were on the following products: products of animal origin, nes (HS 5); manufactures of plaiting material, basketwork, etc (HS 46); umbrellas, walking-sticks, seat-sticks, whips, etc (HS 65); and, fish, crustaceans, mollusks, aquatic invertebrates nes (HS 3).

Between 1999-2000, Viet Nam RCDs were at the highest level (zero comparative advantages) for products of HS 13-15, HS 20, HS 25, HS 30-31, HS 37-41, HS 44, HS 46, HS 47-50, HS 70, HS 86, HS 90-92, and HS 94-96. However, started in 2001, the number of RCA index of the above mentioned products has slightly improved. Throughout 2001-2006, Viet Nam RCDs were for products such: pulp of wood, fibrous cellulosic material, waste, ect (HS 47); and, railway, tramway locomotives, rolling stock, equipment (HS 86).

11. Brunei Darussalam

Brunei Darussalam RCAs in the world for 1999-2006 were on the following products: Mineral fuels, oils, distillation products, etc (HS 27), articles of apparel, accessories, knit or crochet (HS 61), articles of apparel, accessories, not knit or crochet (HS 62), essential oils, perfumes, cosmetics, toiletries (HS 33), and soaps, lubricants, waxes, candles, modelling pastes (HS 34). The other HS has value of RCA below 1 which means comparative disadvantage for Brunei Darussalam.

12. Cambodia

Cambodia RCAs in the world for 1999-2006 were on the following products: Printed books, newspapers, pictures etc (HS 49), Name: Residues, wastes of food industry, animal fodder (HS 23), Name: Other made textile articles, sets, worn clothing etc (HS 63), Headgear and parts thereof (HS 65), and lead and articles thereof (HS 78). The other HS has value of RCA below 1 which means comparative disadvantage for Brunei Darussalam.

We summarize the descriptions of HS that have highest RCA in each East Asia Countries (in Table 21).

Table 21 : Highest RCA in East Asian Countries

Countries	Description of HS	Year
Brunei Darussalam	Name: Mineral fuels, oils, distillation products, etc	2006
Cambodia	Name: Printed books, newspapers, pictures etc	2004
China	Name: Articles of apparel, accessories, knit or crochet	2006
Hong Kong SAR	Name: Bird skin, feathers, artificial flowers, human hair	2006
Indonesia	Name: Animal, vegetable fats and oils, cleavage products, etc	2006
Japan	Name: Photographic or cinematographic goods	2006
Malaysia	Name: Animal, vegetable fats and oils, cleavage products, etc	2006
Philippines	Name: Manufactures of plaiting material, basketwork, etc.	2006
Rep. of Korea	Name: Ships, boats and other floating structures	2006
Singapore	Name: Electrical, electronic equipment	2006
Thailand	Name: Rubber and articles thereof	2006
Viet Nam	Name: Manufactures of plaiting material, basketwork, etc.	2004

4.3.2 Competition vs Complementarities between East Asia Countries

The interesting question that has been raised is there competition or complementarities in export market between East Asia countries. To answer the question we are going to use correlation of RCA between East Asia countries like Batra and Khan (2005) has done for finding the evidence of competition or complementarities for China and India export in the world market.

Table 22 : Correlation of RCA 1999 and 2006

			Correlations 1999									
Spearman's rho			CHINA	HONGKONG	INDONESI	JAPAN	MALAYSIA	PHILIPIN	KOREA	SINGAPOR	THAILAND	VIETNAM
CHINA	Correlation Coefficient		1.000	.700**	-.368**	.529**	.158	-.526**	-.342**	.078	.686**	-.330**
	Sig. (2-tailed)		.	.000	.001	.000	.168	.000	.002	.495	.000	.003
	N		78	78	78	78	78	78	78	78	78	78
HONGKONG	Correlation Coefficient		.700**	1.000	-.305**	-.576**	.159	.484**	.241*	.152	.618**	.236*
	Sig. (2-tailed)		.000	.	.007	.000	.166	.000	.034	.184	.000	.038
	N		78	78	78	78	78	78	78	78	78	78
INDONESI	Correlation Coefficient		-.368**	-.305**	1.000	.184	.182	.689**	-.029	.101	.537**	.386**
	Sig. (2-tailed)		.001	.007	.	.107	.111	.000	.800	.379	.000	.000
	N		78	78	78	78	78	78	78	78	78	78
JAPAN	Correlation Coefficient		.529**	-.576**	.184	1.000	.073	-.316**	.401**	.097	.494**	.147
	Sig. (2-tailed)		.000	.000	.107	.	.524	.005	.000	.397	.000	.198
	N		78	78	78	78	78	78	78	78	78	78
MALAYSIA	Correlation Coefficient		.158	.159	.182	.073	1.000	.086	.161	.614**	.169	.066
	Sig. (2-tailed)		.168	.166	.111	.524	.	.457	.159	.000	.139	.567
	N		78	78	78	78	78	78	78	78	78	78
PHILIPIN	Correlation Coefficient		-.526**	.484**	.689**	-.316**	.086	1.000	.020	.039	.601**	.330**
	Sig. (2-tailed)		.000	.000	.000	.005	.457	.	.860	.733	.000	.003
	N		78	78	78	78	78	78	78	78	78	78
KOREA	Correlation Coefficient		-.342**	.241*	-.029	.401**	.161	.020	1.000	.233*	.233*	.142
	Sig. (2-tailed)		.002	.034	.800	.000	.159	.860	.	.040	.040	.216
	N		78	78	78	78	78	78	78	78	78	78
SINGAPOR	Correlation Coefficient		.078	.152	.101	.097	.614**	.039	.233*	1.000	.099	.056
	Sig. (2-tailed)		.495	.184	.379	.397	.000	.733	.040	.	.387	.628
	N		78	78	78	78	78	78	78	78	78	78
THAILAND	Correlation Coefficient		.686**	.618**	.537**	.494**	.169	.601**	.233*	.099	1.000	.457**
	Sig. (2-tailed)		.000	.000	.000	.000	.139	.000	.040	.387	.	.000
	N		78	78	78	78	78	78	78	78	78	78
VIETNAM	Correlation Coefficient		-.330**	.236*	.386**	.147	.066	.330**	.142	.056	.457**	1.000
	Sig. (2-tailed)		.003	.038	.000	.198	.567	.003	.216	.628	.000	.
	N		78	78	78	78	78	78	78	78	78	78

** . Correlation is significant at the .01 level (2-tailed).

* . Correlation is significant at the .05 level (2-tailed).

Correlations 2006

			BRUNEI	CHINA	HONGKONG	INDONESI	JAPAN	MALAYSIA	PHILIPPI	KOREA	SINGAPOR	THAILAND
Spearman's rho	BRUNEI	Correlation Coefficient	1.000	.191	-.002	.051	.197	.186	-.105	.213	.026	-.023
		Sig. (2-tailed)	.	.093	.985	.655	.084	.104	.361	.061	.824	.842
		N	78	78	78	78	78	78	78	78	78	78
CHINA	CHINA	Correlation Coefficient	.191	1.000	.556**	.204	.092	-.030	.183	.321**	-.182	.275*
		Sig. (2-tailed)	.093	.	.000	.073	.425	.795	.109	.004	.111	.015
		N	78	78	78	78	78	78	78	78	78	78
HONGKONG	HONGKONG	Correlation Coefficient	-.002	.556**	1.000	.072	.193	-.002	.149	.381**	.254*	.283*
		Sig. (2-tailed)	.985	.000	.	.533	.091	.989	.193	.001	.025	.012
		N	78	78	78	78	78	78	78	78	78	78
INDONESI	INDONESI	Correlation Coefficient	.051	.204	.072	1.000	-.070	.194	.356**	.044	-.153	.267*
		Sig. (2-tailed)	.655	.073	.533	.	.545	.089	.001	.702	.182	.018
		N	78	78	78	78	78	78	78	78	78	78
JAPAN	JAPAN	Correlation Coefficient	.197	.092	.193	-.070	1.000	.428**	-.131	.750**	.467**	.121
		Sig. (2-tailed)	.084	.425	.091	.545	.	.000	.254	.000	.000	.290
		N	78	78	78	78	78	78	78	78	78	78
MALAYSIA	MALAYSIA	Correlation Coefficient	.186	-.030	-.002	.194	.428**	1.000	.177	.345**	.463**	.196
		Sig. (2-tailed)	.104	.795	.989	.089	.000	.	.121	.002	.000	.086
		N	78	78	78	78	78	78	78	78	78	78
PHILIPPI	PHILIPPI	Correlation Coefficient	.105	.183	.149	.356**	-.131	.177	1.000	-.075	-.092	.331**
		Sig. (2-tailed)	.361	.109	.193	.001	.254	.121	.	.513	.422	.003
		N	78	78	78	78	78	78	78	78	78	78
KOREA	KOREA	Correlation Coefficient	.213	.321**	.381**	.044	.750**	.345**	-.075	1.000	.364**	.210
		Sig. (2-tailed)	.061	.004	.001	.702	.000	.002	.513	.	.001	.065
		N	78	78	78	78	78	78	78	78	78	78
SINGAPOR	SINGAPOR	Correlation Coefficient	.026	-.182	.254*	-.153	.467**	.463**	-.092	.364**	1.000	.038
		Sig. (2-tailed)	.824	.111	.025	.182	.000	.000	.422	.001	.	.743
		N	78	78	78	78	78	78	78	78	78	78
THAILAND	THAILAND	Correlation Coefficient	-.023	.275*	.283*	.267*	.121	.196	.331**	.210	.038	1.000
		Sig. (2-tailed)	.842	.015	.012	.018	.290	.086	.003	.065	.743	.
		N	78	78	78	78	78	78	78	78	78	78

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

1. Correlation between China and other East Asia countries

The evidence of negative correlations are hold for two countries, Singapore and Malaysia (however insignificant for Malaysia and marginally significant for Singapore). The evidence shows complementarities between China and Singapore and Malaysia. On the other hand, there are positive and highly significant correlations between China and Korea, Thailand, Hongkong. It shows high degree of competition between China and three countries. For Indonesia, Brunei, Japan, and Philippines there are positive correlation and moderately significant (marginally significant), which shows moderate competition.

2. Correlation between Japan and other East Asia countries

The evidence of negative correlations are hold for two countries, Indonesia and Philippines. The evidence shows complementarities between Japan and Indonesia and Philippines. On the other hand, there are positive and highly significant correlations between Japan, Malaysia, Korea, and Singapore. It shows high degree of competition between Japan and three countries. For Hongkong and Brunei there are positive correlation and moderately significant (marginally significant), which shows moderate competition.

3. Correlation between Korea and other East Asia countries

Korea has positive and significant correlation in RCA with China, Hongkong, Japan, and Singapore. It also has positive and marginally significant correlation with Thailand. On the other hand, Korea has positive and insignificant correlation with Indonesia, Malaysia, Vietnam, and Philippines.

4. Correlation between Hongkong and other East Asia countries

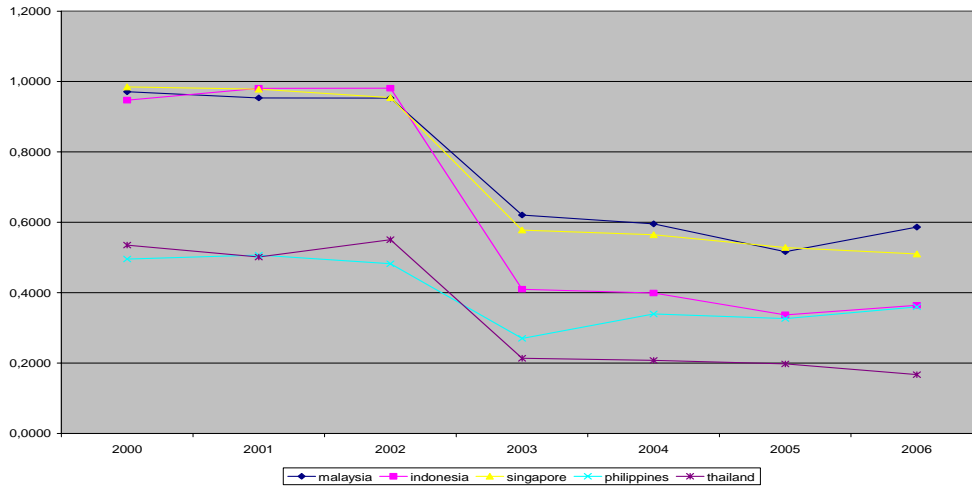
Hongkong has positive and significant correlation in RCA with China, Thailand, Vietnam, Korea, and Singapore. It also has positive and marginally significant correlation with Japan, Indonesia, Malaysia, and Philippines. On the other hand, Malaysia and Brunei has negative and significant correlation with Korea.

5. Correlation within ASEAN countries

High degree of export competition (showed by positive and significant correlation) within ASEAN countries are hold for : Vietnam and Thailand, Malaysia and Singapore, Indonesia and Vietnam, Indonesia and Thailand, Indonesia and Philippines, Thailand and Philippines. Especially for Singapore and Malaysia they tend to compete with non-ASEAN countries in East Asia, not within ASEAN countries.

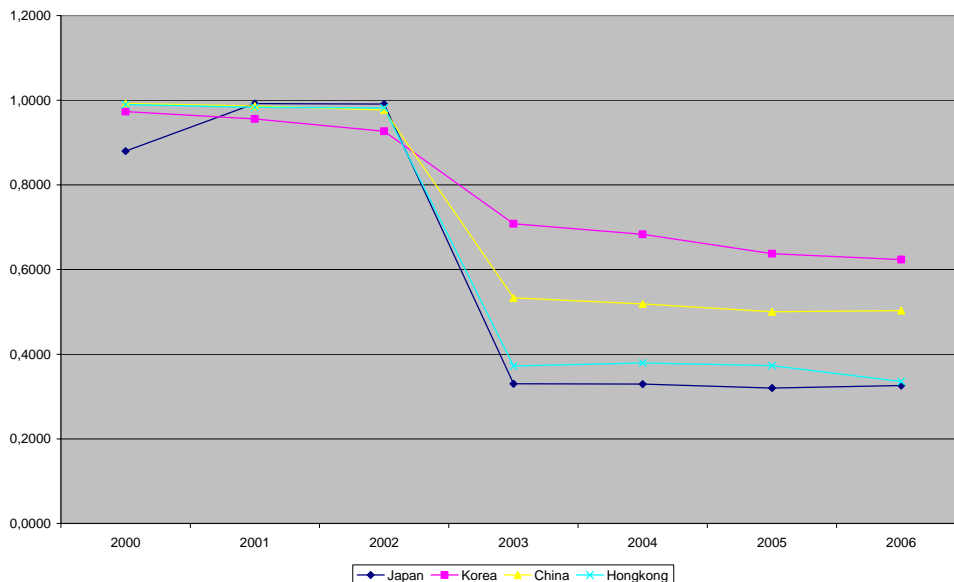
4.3.3 Dynamic of RCA

Figure 38 : RCA Correlation For ASEAN-5 countries



From 2002 to 2003, all of ASEAN countries have significant change in correlation with 1999 RCA. It showed structural change in comparative advantage of ASEAN countries. Indonesia have highest structural change. All ASEAN countries have decreasing trend in correlation of annual RCA, showed there was structural change for the period observed.

Figure 39 : RCA Correlations For Japan, China, Korea, and Hongkong



Japan, Korea, China, and Hongkong had the same story with ASEAN countries in terms of structural change from 2002 to 2003. Like ASEAN evidence, Japan, Korea, China, and Hongkong also showed structural change in export comparative advantage for the period observed.

V.CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations resulted from this research are as follows:

1. Based on aggregate competitiveness index using simple average the order of countries based on their competitiveness are : United States, Japan, Hongkong, Euro Area, Singapore, Korea, Malaysia, China, Brunei Darussalam, Thailand, Vietnam, Philippines, Indonesia, Myanmar, Cambodia, and Lao PDR. Even though the results have little difference with GCI rank, much of the results approach GCI rank. We contribute to calculate index for Brunei Darussalam, Cambodia, and Myanmar that has not been available in GCI.
2. Differentiating between monetary sector and real sector competitiveness could help policy makers to focus on policy target in each sector. For example, central bank, banking sector, capital market authority have major responsibility to boost up monetary sector competitiveness. On the other hand, trade ministry, investment authority, national education department, and industrial ministry have major responsibility to improve real sector performance. For real sector index, the best performer in East Asia is Japan, and the next best is Korea, and then followed by Singapore. For the four variables represents monetary sector index, we can conclude that some of East Asia countries (Hong Kong, Japan, China, and Singapore) have good performance compared to benchmark countries (US and EU). On the other hand, some of East Asia countries have low index and wide gap with best performer in East Asia and with benchmark countries (US and EU). The countries are Indonesia and transition countries such as Lao PDR, Myanmar, and Cambodia. This is a challenge for policy maker in such countries to narrow the gap and to increase the performance in monetary sector.
3. Competitiveness map resulted in these research could produce policy recommendation to increase countries with low index (for example for Indonesia, Lao PDR, Cambodia, and Myanmar). We have done matrix for policy recommendation for each component of competitiveness. The summaries of recommendations for CLMV are as follows. Although the specifics vary, these countries must make efforts in all areas measured by the GCI to improve their competitive standing, most urgently by improving health and educational standards, upgrading infrastructure and technology, and creating market-friendly business environments. From monetary sector, these countries must do hard effort to develop finance/monetary sector to boost real sector performance. An efficient financial sector/monetary sector is needed to allocate the resources saved by nation's citizens to its most productive uses. A proficient financial/monetary sector channels resources to the best entrepreneurs or investment project.
3. Transition countries CLMV (Cambodia, Lao, Myanmar, and Vietnam) have low performance in monetary sector and real sector. Only Vietnam has better condition. Vietnam has the best index compared to other transition countries. Policymaker and all stakeholders in CLMV must catch up the other countries performance. Efforts to improve basic education, health systems and infrastructure are critical for the CLMV as lowest-ranked economies in East Asia.
4. Further East Asia integration is expected to narrow the gap between East Asia countries and to reduce the difference in economic performance. Given the evidence of heterogeneous picture of competitiveness in East Asia, collaboration is expected to enhance competitiveness together.

Countries in cluster 1 must do hard efforts to join cluster 2, and also the countries in cluster 2 must increase the performance to become cluster 3, and the countries in cluster 3 should join cluster 4. After these changes, the countries in cluster 3 expected to become cluster 2, etc until all countries in East Asia are in the same cluster with high performance. But of course it is not automatic process. It's need hard effort from policy maker and society in East Asia countries. Further prioritization of policy for each cluster can be produced by more detailed clustering analysis.

5. In general East Asian countries have high Revealed Comparative Advantages (RCA) in the world for these following products: headgear and parts thereof (HS 65); lead and articles thereof (HS 78); bird skin, feathers, artificial flowers, human hair (HS 67); animal, vegetable fats and oils, cleavage products, etc (HS 15); as well as products of animal origin, nes (HS 5). However, East Asia's main Revealed Comparative Disadvantages (RCD) includes these products: wood, articles of wood, wood charcoal (HS 44); railway, tramway locomotives, rolling stock, equipment (HS 86) products; leather products (HS 41); as well as pulp of wood, fibrous cellulosic material, waste etc (HS 47).
6. Some of East Asia countries has positive and significant correlation in RCA, showing high degree of complementarities, for example China with Korea, Thailand, and Hongkong; Japan with Malaysia, Korea, and Singapore. Hongkong also has positive and significant correlation in RCA with China, Thailand, Vietnam, Korea, and Singapore. However, some of East Asia countries show high degree of complementarities in export market, such as China with Singapore and Malaysia; Japan with Indonesia and Philippines; Korea with Malaysia and Brunei Darussalam. The facts that some of East Asia countries have high degree of competition in world export market must handle by each Asia countries if they want to integrate more. East Asia countries must increase the degree of complementarities in export market.
7. Structure of RCA (from 2 digit HS) in most of all East Asia countries has changed with dynamic movement showed by decreasing trend of RCA correlation from time to time in the observation period (1999-2006).
8. Further study about East Asia competitiveness needs to be conducted in future research, especially to overcome the weakness of this study. More comprehensive variables in the index of competitiveness and more advanced methods in creating and analyzing the index are expected to improve the study.

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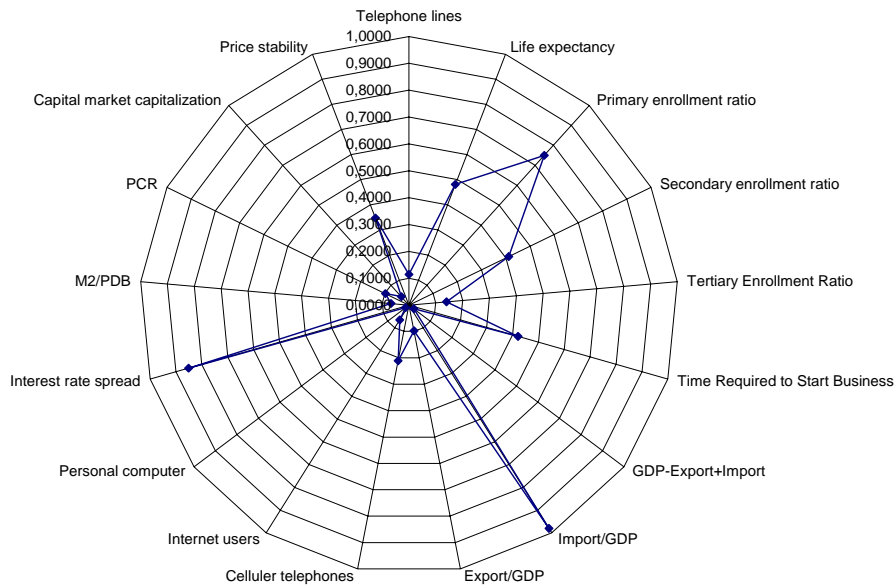
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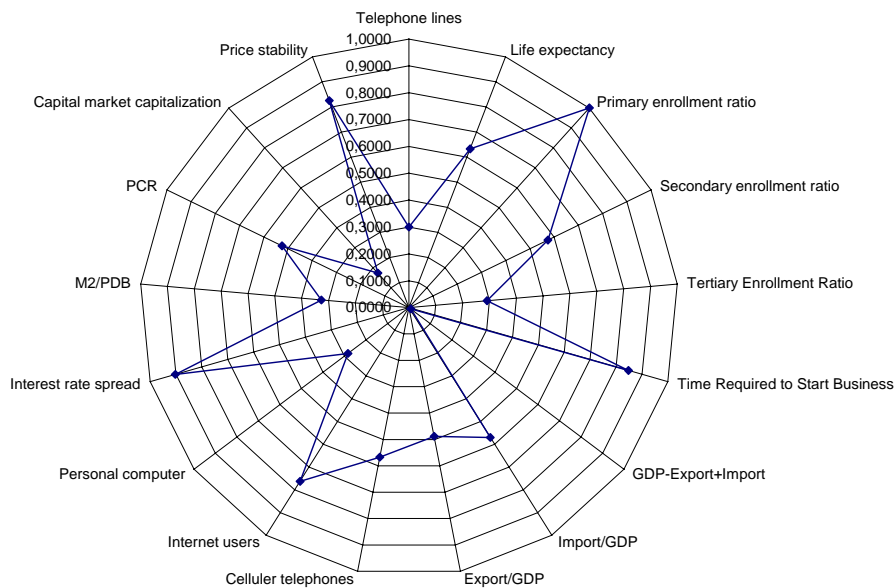
APPENDIX

Appendix 1 : Graph of Competiveness Index Components

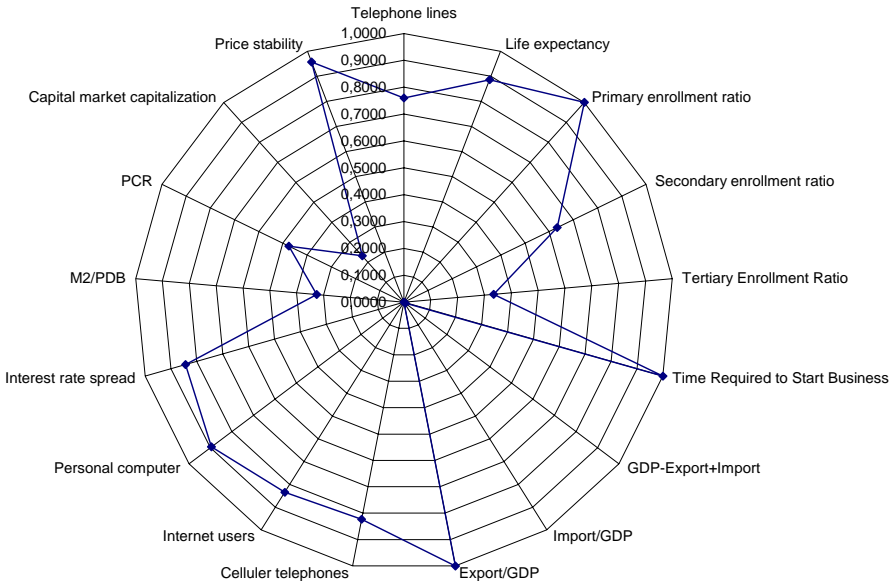
1.Indonesia



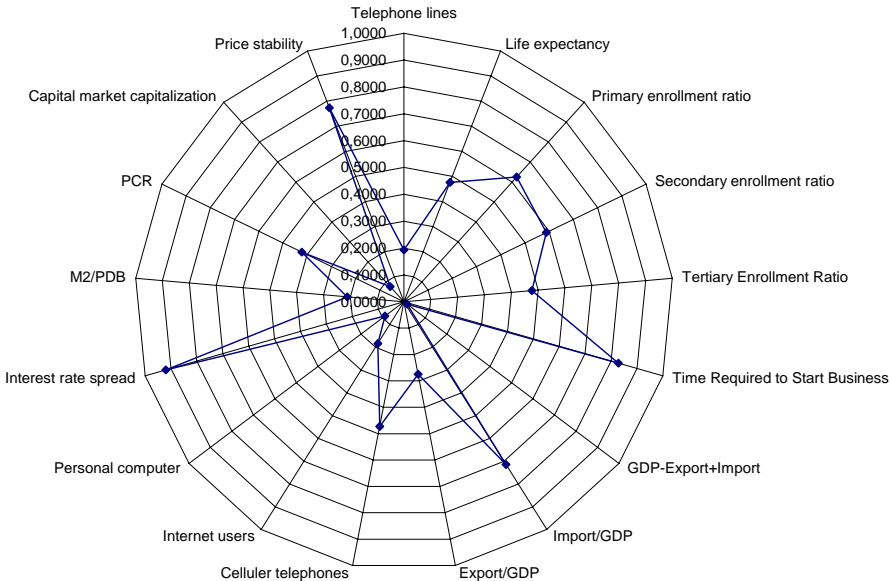
2.Malaysia



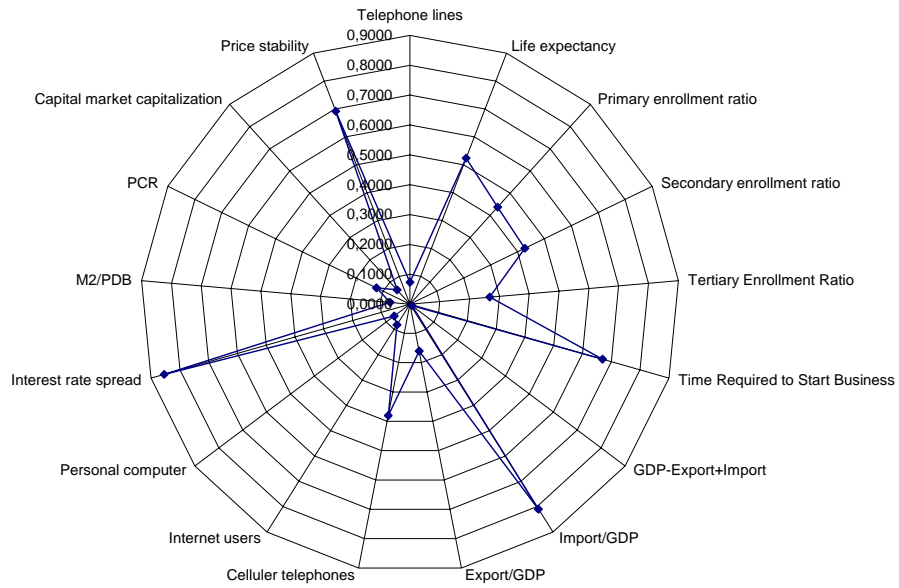
3.Singapore



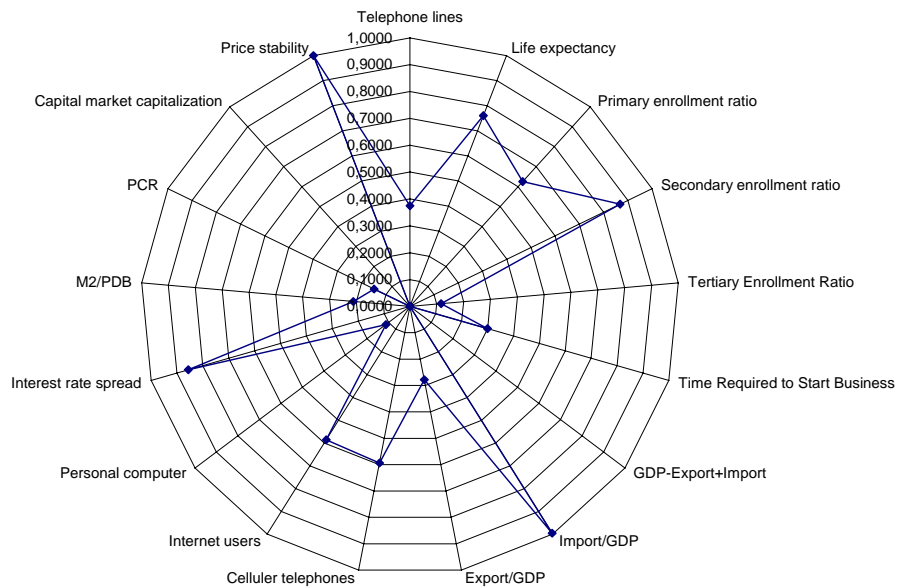
4.Thailand



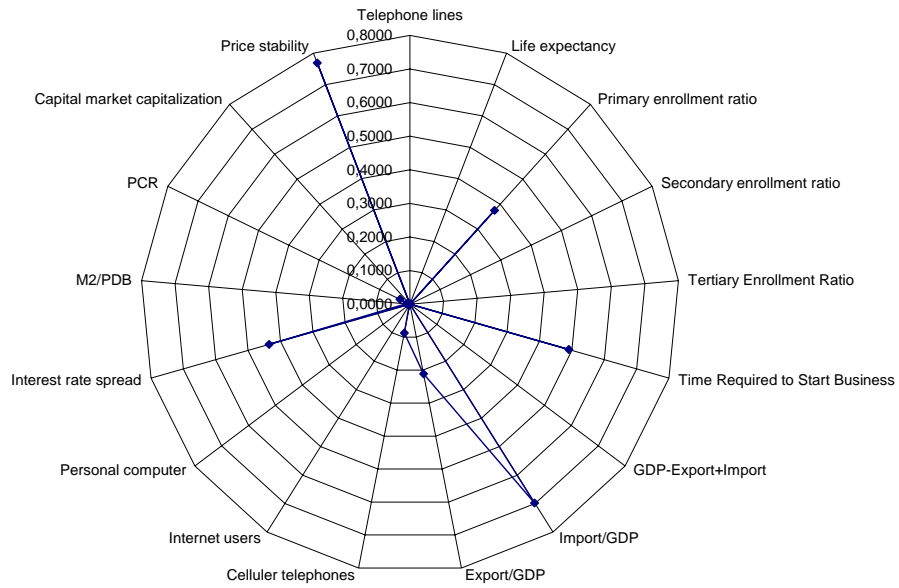
5. Philippines



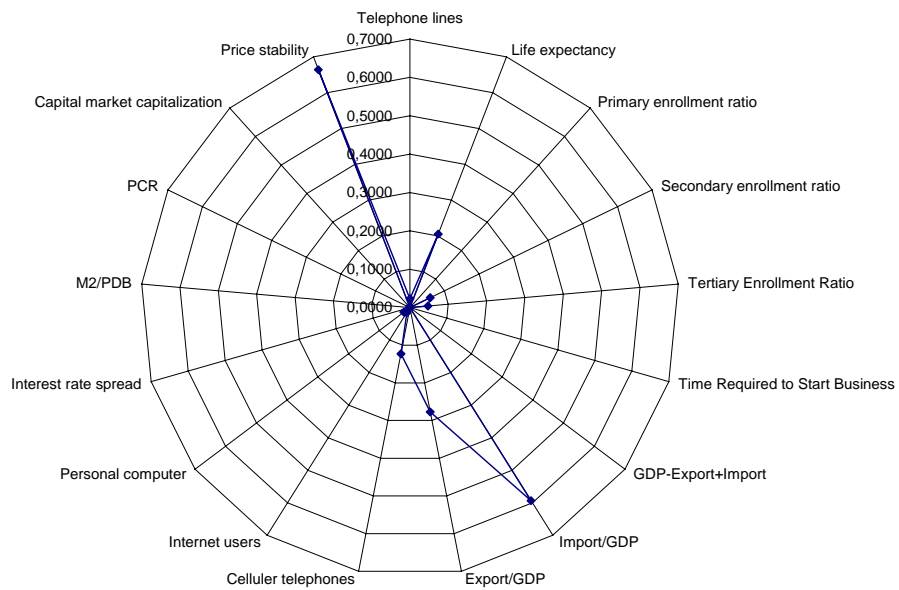
6. Brunei Darussalam



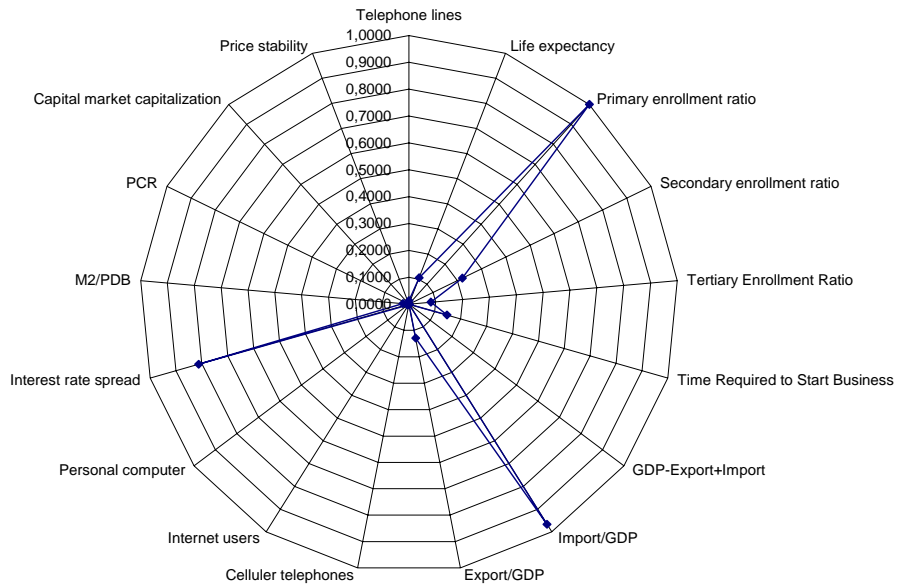
7. Cambodia



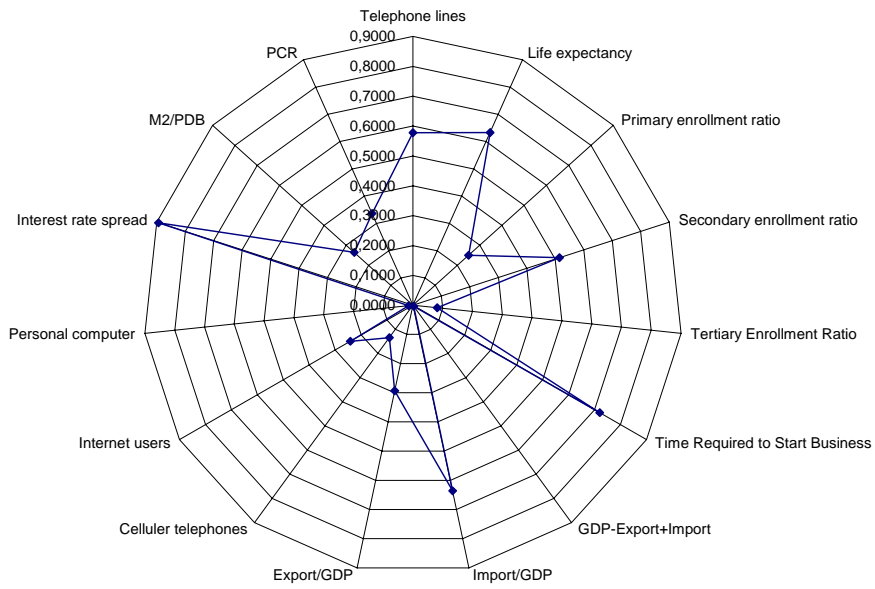
8. Lao PDR



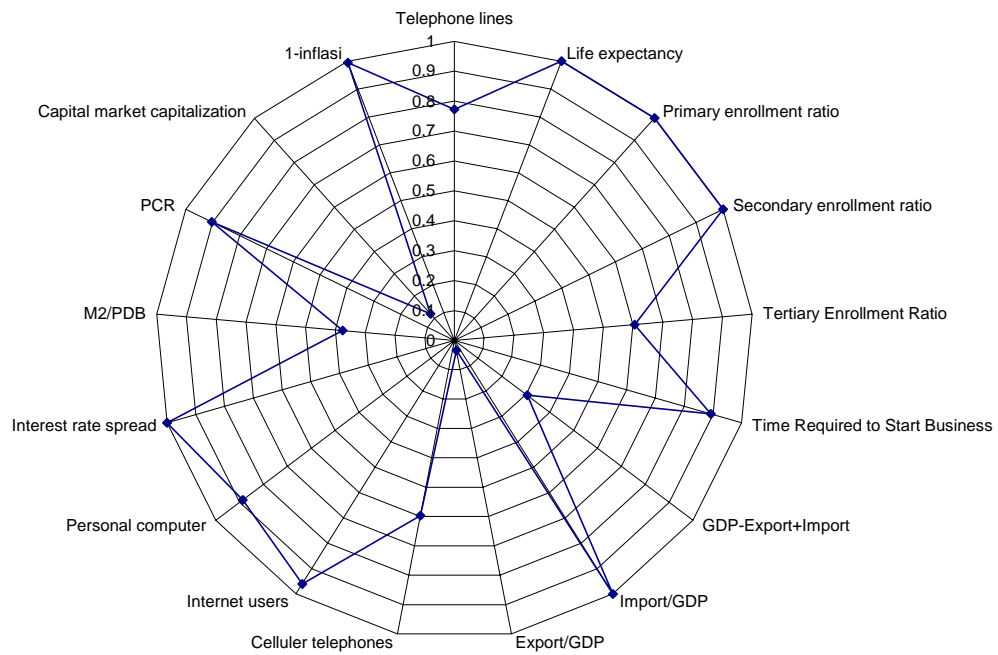
9. Myanmar



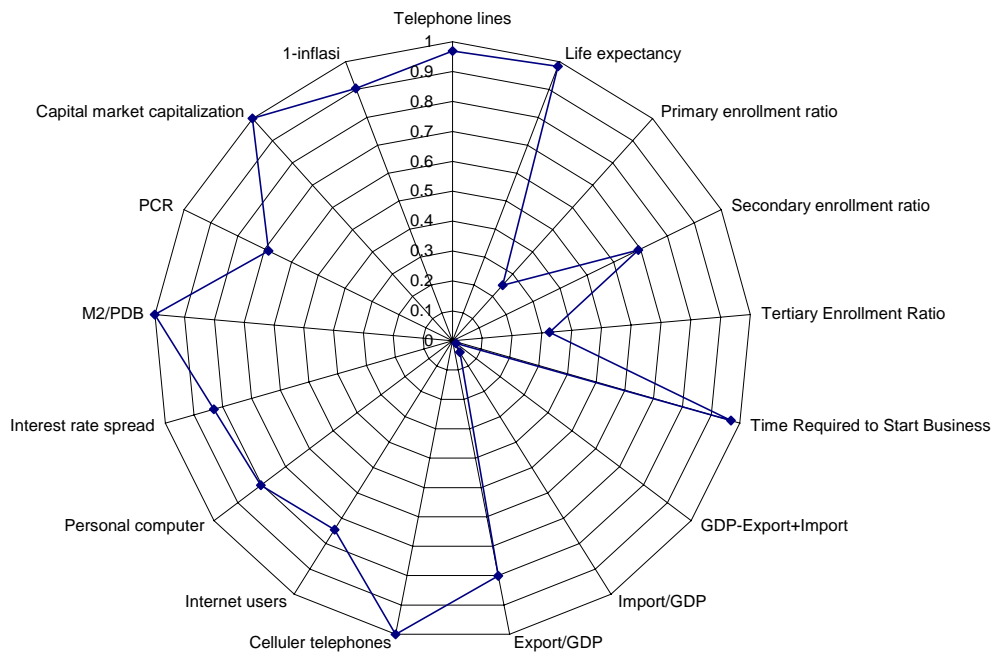
10. Vietnam



11. Japan



12. Hong Kong



Appendix 2 : Two Digit HS

CODE	DESCRIPTION	CODE	DESCRIPTION
<u>1</u>	Name: Live animals	<u>49</u>	Name: Printed books, newspapers, pictures etc
<u>2</u>	Name: Meat and edible meat offal	<u>50</u>	Name: Silk
<u>3</u>	Name: Fish, crustaceans, molluscs, aquatic invertebrates nes	<u>52</u>	Name: Cotton
<u>4</u>	Name: Dairy products, eggs, honey, edible animal products	<u>54</u>	Name: Manmade filaments
<u>5</u>	Name: Products of animal origin, nes	<u>55</u>	Name: Manmade staple fibres
<u>7</u>	Name: Edible vegetables and certain roots and tubers	<u>56</u>	Name: Wadding, felt, nonwovens, yarns, twine, cordage, etc
<u>8</u>	Name: Edible fruit, nuts, peel of citrus fruit, melons	<u>57</u>	Name: Carpets and other textile floor coverings
<u>9</u>	Name: Coffee, tea, mate and spices	<u>58</u>	Name: Special woven or tufted fabric, lace, tapestry etc
<u>11</u>	Name: Milling products, malt, starches, inulin, wheat gluten	<u>59</u>	Name: Impregnated, coated or laminated textile fabric
<u>12</u>	Name: Oil seed, oleagif fruits, grain, seed, fruit, etc, nes	<u>61</u>	Name: Articles of apparel, accessories, knit or crochet
<u>13</u>	Name: Lac, gums, resins, vegetable saps and extracts nes	<u>62</u>	Name: Articles of apparel, accessories, not knit or crochet
<u>14</u>	Name: Vegetable plaiting materials, vegetable products nes	<u>63</u>	Name: Other made textile articles, sets, worn clothing etc
<u>15</u>	Name: Animal,vegetable fats and oils, cleavage products, etc	<u>64</u>	Name: Footwear, gaiters and the like, parts thereof
<u>20</u>	Name: Vegetable, fruit, nut, etc food preparations	<u>65</u>	Name: Headgear and parts thereof
<u>21</u>	Name: Miscellaneous edible preparations	<u>66</u>	Name: Umbrellas, walking-sticks, seat-sticks, whips, etc
<u>22</u>	Name: Beverages, spirits and vinegar	<u>67</u>	Name: Bird skin, feathers, artificial flowers, human hair
<u>23</u>	Name: Residues, wastes of food industry, animal fodder	<u>68</u>	Name: Stone, plaster, cement, asbestos, mica, etc articles
<u>24</u>	Name: Tobacco and manufactured tobacco substitutes	<u>69</u>	Name: Ceramic products
<u>25</u>	Name: Salt, sulphur, earth, stone, plaster, lime and cement	<u>70</u>	Name: Glass and glassware
<u>26</u>	Name: Ores, slag and ash	<u>71</u>	Name: Pearls, precious stones, metals, coins, etc
<u>27</u>	Name: Mineral fuels, oils, distillation products, etc	<u>72</u>	Name: Iron and steel
<u>28</u>	Name: Inorganic chemicals, precious metal compound, isotopes	<u>73</u>	Name: Articles of iron or steel
<u>29</u>	Name: Organic chemicals	<u>74</u>	Name: Copper and articles thereof
<u>30</u>	Name: Pharmaceutical products	<u>76</u>	Name: Aluminium and articles thereof
<u>31</u>	Name: Fertilizers	<u>78</u>	Name: Lead and articles thereof
<u>32</u>	Name: Tanning, dyeing extracts, tannins, derivs,pigments etc	<u>79</u>	Name: Zinc and articles thereof
<u>33</u>	Name: Essential oils, perfumes, cosmetics, toileteries	<u>83</u>	Name: Miscellaneous articles of base metal
<u>34</u>	Name: Soaps, lubricants, waxes, candles, modelling pastes	<u>84</u>	Name: Nuclear reactors, boilers, machinery, etc
<u>35</u>	Name: Albuminoids, modified starches, glues, enzymes	<u>85</u>	Name: Electrical, electronic equipment
<u>37</u>	Name: Explosives, pyrotechnics, matches, pyrophorics, etc	<u>86</u>	Name: Railway, tramway locomotives, rolling stock, equipment
<u>38</u>	Name: Miscellaneous chemical products	<u>87</u>	Name: Vehicles other than railway, tramway
<u>39</u>	Name: Plastics and articles thereof	<u>88</u>	Name: Aircraft, spacecraft, and parts thereof
<u>40</u>	Name: Rubber and articles thereof	<u>89</u>	Name: Ships, boats and other floating structures
<u>41</u>	Name: Raw hides and skins (other than furskins) and leather	<u>90</u>	Name: Optical, photo, technical, medical, etc apparatus
<u>42</u>	Name: Articles of leather, animal gut, harness, travel goods	<u>91</u>	Name: Clocks and watches and parts thereof
<u>44</u>	Name: Wood and articles of wood, wood charcoal	<u>92</u>	Name: Musical instruments, parts and accessories
<u>46</u>	Name: Manufactures of plaiting material, basketwork, etc.	<u>94</u>	Name: Furniture, lighting, signs, prefabricated buildings
<u>47</u>	Name: Pulp of wood, fibrous cellulosic material, waste etc	<u>95</u>	Name: Toys, games, sports requisites
<u>48</u>	Name: Paper & paperboard, articles of pulp, paper and board	<u>96</u>	Name: Miscellaneous manufactured articles

