EAST ASIAN REGIONALISM: THE NEED FOR ASEAN+3 FTA

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ABSTRACT

For the past few years, regionalism has been progressing in East Asia with the likes of China, Japan, and Korea (CJK) as the most prominent actors. Unfortunately, with the absence of trade arrangement amongst the CJK, the present regional trade scheme is not sufficient to reach sustainability. With the absence of the trade agreements, the present intra regional trade scheme in CJK is not sufficient to meet the target. This paper uncovers the inefficiency of the present scheme through Engle-Granger Cointegration and the Error Correction Mechanism. Moreover, the paper underlines the importance of a triangular trade agreement for accelerating the phase of growth in the region. The paper argues that the spillover effect along with the convergence in terms of trade, Product Complementarities and the nexus between Revealed Comparative Advantage (RCA) with the Intra Industry Trade (IIT) function as economic modalities for creating region-wide FTA. As for this reason, Two Stage Least Squares (2SLS) and static panel fixed effect models are employed. Furthermore, the paper also identifies a number of economic and political factors that can support the formation of East Asian Regionalism.

1.0 INTRODUCTION

For years, regionalism has become a new trend in East Asia. East Asian Countries have been focusing on ways to expand intra regional trade that include: the establishment of Regional Trade Agreements (RTAs) in the form of Free Trade Agreements (FTAs) and Economic Partnership Agreements (EPAs). The study of regionalism is very vital since the trend has indeed created a profound regional and indeed global significance (Harvey and Lee, 2002). Japan, Korea and China are regarded as the key actors for such action in East Asia.

Being acknowledged as the economic front runners, Japan, China and Korea are assumed to have heavy responsibility for the economic welfare in the East Asian region. It is very obvious that East Asian regionalism (EAR) cannot be put into practice without these countries' strong support, CJK will have the key since the three countries occupy about 17 per cent of both world GDP and trade. Unfortunately, the lack of institutional arrangements among these giant countries has stalled the overall welfare effect for the East Asian communities.

Tracing back the relations since the post war era, economic ties between Japan, Korea and China has evolved in somewhat gradual ways. The evolution of trade activities emerged from the likes of China, which has a substantial transformation of trade structures. In the early 90's, primary commodities accounted for more than one third of China's total export to Japan and Korea.

In this new millennium, it is still top Chinese export to Japan and Korea, but it is persistently followed by the fast growth of machinery and transport (Chan and Chin Kuo, 2005). From this point of view, trade within the north East Asian region is deemed to have substantial movement as a result from the shift of trade towards a more industrialized structure. The present driving force of the China-Japan-Korea (CJK) relationship is the market by which in some sense is not enough; it should be matched by regionalism. The main focus of the regionalism is to make these countries grow together so that it can spread positive externalities throughout the East Asian region. In the long run it is expected that CJK will lead regionalism in East Asia.

In this paper, EAR is defined by the join Region of CJK and ASEAN (ASEAN plus three). Due to data limitation, ASEAN4 (Malaysia, Thailand, Indonesia, Philippines) will serve as a proxy for ASEAN countries. In the last decade, the share of intraregional trade of ASEAN plus 3 is almost 60% and is still increasing. The coalition of ASEAN and CJK is becoming more strategic in recent years. Figure 1 shows the increasing trend of trade in ASEAN plus three countries.

Figure 1. ASEAN Trade with its main Asian Partners All products, 2002 and 2007, Billion us$
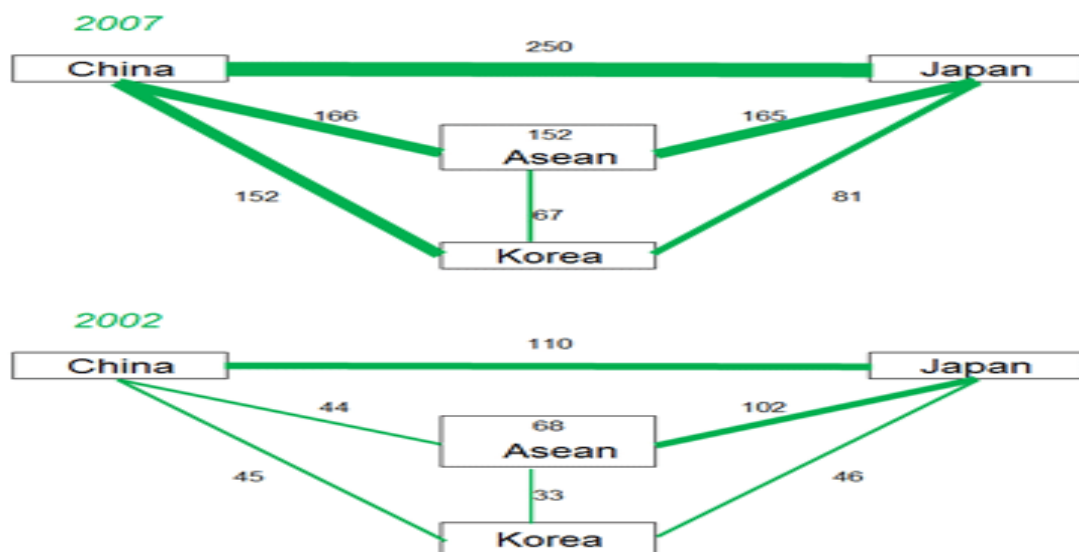
Source: APEC Statistical Database

The remainder of the paper is organized as follows. The second section studies the materials and methods. The third section examines the result of the regressions with some discussions. The last section presents conclusion and some concluding remarks.

2.0 METHODOLOGY

2.1 ANALYZING THE TRADE STRUCTURE OF CJK

2.1.1 MEASURING THE SHORT AND THE LONG RUN EQUILIBRIUM OF EXPORT TO GDP

To some extent, trade is almost synonymous to a country's welfare. More specifically, some research pointed out export as an engine of economic growth. From this stand point, it is important to measure export sustainability to the economy, which in this section export among the CJK become the main focus.

As already explained earlier, Japan, China and Korea are experiencing golden period in doing export among them. Economic welfare is the most notable goal which links in this activity, but is it sufficient to boost the economy in the long run? A pure market driven activity without specific regional trade agreement might sometime create bias. It is clear that Japan, Korea and China are lacking of such agreement among them (Urata and Kiyota, 2003) as described in the table 1.

To make an effective regionalism, Japan, China and Korea should support each other. Therefore, intra regional cooperation within the CJK must take place by which can create sustainable growth in East Asian region. The following sections serve to prove export sustainability to economic growth, in the absence of trade arrangements, for the short and the long run. Engle-Granger Cointegration and Error Correction Mechanism test are then employed for this cause. This test employs time series quarterly data of GDP and for Japan, China and Korea ranging from 1985 to 2004. The data is taken from CEIC database.

Table 1. Japan, China and Korea FTAs/EPAs

Countries	Situation	Countries
	Concluded	Chile, ASEAN, Hong Kong, Macao
China	Under Negotiations	NZ, Australia, Pakistan, Singapore, GCC, SACU
	Under Considerations	Iceland, India, Japan-Korea-China, FTAAP, Switzerland
	Concluded	Chile, Singapore, EFTA, ASEAN, USA
Korea	Under Negotiations	India, Mexico, Canada, EU
	Under Considerations	FTAAP, China, Mercosur, NZ, South Africa, Japan-China-Korea, Australia, GCC
	Concluded	Singapore, Mexico, Malaysia, Philippines, Chile, Thailand, Brunei, Indonesia
Japan	Under Negotiations	India, Vietnam, Australia, Switzerland, Korea, GCC, ASEAN
	Under Considerations	FTAAP, Japan-China-Korea, South Africa

Source: Japanese Ministry of Economy, Trade and Industry, 2007

2.1.2 DEFINING THE LONG RUN EQUILIBRIUM: ENGLE GRANGER COINTEGRATION TEST

In doing Engle Granger Co integration test, this paper divides the export relationship in to three parts which are described in the following equations:

i. China and Japan Export Relationship

$$JPGDP_t = \beta_0 + \beta_1 ExportCH_t + u_t \tag{1}$$

$$CHGDP_t = \beta_0 + \beta_1 ExportJP_t + u_t \tag{2}$$

ii. Korea and Japan Export Relationship

$$KRGDP_t = \beta_0 + \beta_1 ExportJP_t + u_t \tag{3}$$

$$JPGDP_t = \beta_0 + \beta_1 ExportKR_t + u_t \tag{4}$$

iii. China and Korea Export Relationship

$$CHGDP_t = \beta_0 + \beta_1 ExportKR_t + u_t \tag{5}$$

$$KRGDP_t = \beta_0 + \beta_1 ExportCH_t + u_t \tag{6}$$

In these equations, JPGDP, CHGDP and KRGDP are Japan's GDP, China's GDP, and Korea's GDP respectively while Export JP, Export CH and Export KR are the variables of export destinations to Japan, China and Korea. It would be possible to co integrate Export and GDP since the trend in export and GDP would offset to each other, creating a stationary residual. The residual is called a co integration parameter. In the data, if we find that the initial regression of the residual (ut) gives stationarity it means that ut is stationary at order 0 (level) and it is notated as I(0). But if ut is stationer in first difference, the variables of Export and GDP will be co integrated in the first difference which can be notated with I(1).

2.1.3 DEFINING THE SHORT RUN EQUILIBRIUM: ERROR CORRECTION MODEL

We have seen the long run relationship between Export and GDP. However, in order to make it objective, we should also see the short run since it is still plausible to perceive disequilibrium.

Thus, $U_t = GDPCountryX_t - \beta_0 - \beta_1 ExportCountryY_t$ could be noted as equilibrium error. This error then could be used to relate the behavior of the short run Japanese GDP The technique to correct short-run disequilibrium to its long run long run equilibrium is called Error Correction Mechanism (ECM). The model of ECM is as follows:

$$\Delta GDPCountryX_t = \beta_0 + \beta_1 \Delta ExportCountryY_t + \beta_2 u_{t-1} + e_t \tag{7}$$

u_{t-1} is a cointegrated error lag 1, or could be noted mathematically as:

$$U_{t-1} = GDPCountryX_{t-1} - \beta_0 - \beta_1 ExportCountryY_{t-1} \tag{8}$$

In this equation, $\Delta GDPCountryX$ is the difference in GDP for Japan, Korea and China, while $\Delta ExportCountryY_t$ is the difference in export from country X to Country Y. As for example, $\Delta GDPJapan_t = \beta_0 + \beta_1 \Delta ExportChina_t + \beta_2 u_{t-1} + e_t$ applies for the effect of Japan's export to China on Japan's GDP. From the above model we can see that the long run relation between Export and GDP in Japan, China and Korea would be balanced by the previous error.

2.2 THE OPENNESS IN TRADE

Greater economic interdependence between Japan, China and Korea will act well as the base of creating regionalism. In this sense, triangular trade agreements that dismantle trade barriers will smooth the progress of improved trade flows among these countries by means of greater market access. But unfortunately, this supporting environment only operates as fact in a sheet. The process of regionalism in this area is proven to be difficult (Hastiadi 2011).

These countries may have aggressively reached other countries in making FTA's and EPA's but none of which have been progressing among them (see table 1). The reason of it will be a subject for another research, while this section tries to focus on the effect of such agreement to the economy. The lack of trade arrangements is being noted as the main factor that contributes intra regional trade ineffectiveness in north East Asia. This hypothesis will be proved in the following sections to come.

2.2.1 OPENNESS WITH CUSTOMIZED RPL INDEX

Export lead growth approach that has been done with the cointegration and ECM has actually provided the basis to measure openness of a country, but in some ways this alone is not enough. It only works for confirming the paradigm of trade as an engine of growth but it is not sufficient to measure a more robust pattern of openness. Therefore, we then may have to address Dollar's Relative Price Level (RPL index).

This index is a measure of outward orientation of an economy which was explored by Summers and Heston (1988). Using the US as the benchmark country, the index of country i's relative price level (RPL) is:

$$RPL_i = 100 \times \frac{P_i}{P_{us}} \times \frac{1}{e} \qquad (10)$$

Where e is the exchange rate and Pi is the consumption price index for country i and Pus is the consumption price index for US. Therefore, we can use the formula to measure inward- or outward-orientation of a trade policy. With using the same analogy, this paper then customizes the RPL index into this formula:

$$RPL_i = 100 \times \frac{P_i}{P_{tp}} \times \frac{1}{e} \qquad (11)$$

Where P_{tp} is the consumption price index for the trading partner and e is the exchange rate (no. of units of domestic currency per unit of trading partner currency). The customized RPL is then become a powerful tool to analyze trade openness between the trading countries

2.2.2 ERROR CORRECTION MECHANISM (ECM) OF RPL INDEX AND GDP

As already explained in the previous section, ECM provides the description of short run shock. In this particular case, we examine the openness vis a vis trade liberalization trend in north East Asia region. This test employs time series quarterly data of Exchange rate, CPI, Export for CJK ranging from 2001 to 2005, the data is taken from CEIC data base. Below is the equation:

$$\Delta GDPCountryX_t = \beta_0 + \beta_1 \Delta RPLCountryY_t + \beta_2 u_{t-1} + e_t \qquad (12)$$

This equation mimics equation 7, but the previous dependent variable is substituted from export to RPL in order to suit the goal which is to measure the openness. $\Delta GDPCountryX$ is the difference in GDP from Japan, Korea and China, $\Delta RPLCountryY$ is the difference in RPL from a country X to Country Y. $\Delta RPLCountryY$ measures the openness of trade from of country X towards Y.

2.3 ECONOMIC MODALITIES

This paper argues that spillover effect, product complementarities, intra industry trade, comparative advantage along with the trend of convergence form the so called economic modalities. The first three factors have a direct relationship to ASEAN welfare through income perspective. The following models give the formulation

$$GDPCAP\left(ASEAN4\right) = \beta_0 + \beta_1 IITCountryY_t + \beta_2 TCI(CountryY)_t + \beta_3 SOE(CountryY)_t$$
$$+\beta_4 TAX(CountryY)_t + e_t \qquad (13)$$

In this equation, GDPCAP(ASEAN4) is the level of income in ASEAN4 countries, while IIT, TCI and SOE are respectively the intra industry trade, product complementarities and the spillover effect. CountryY is the country under study (CJK) in terms of relation with ASEAN4 income level. TAX is the tax level in East Asia which functions as control variable.

The next factor of economic modalities is comparative advantage, in this paper, the comparative advantage functions to determine the type of industry trade whether it is vertical or horizontal (Faustino, 2008). Below is the model:

$$IIT_t = \beta_0 + \beta_1 RCA_t + e_t \qquad (14)$$

Faustino argued that Vertical Intra Industry Trade (VIIT) has an underlying hypothesis that goods are produced under different factor proportions and are exported according to comparative advantages, it is expected that we will find a positive correlation between VIIT and revealed comparative advantage (RCA) and a negative correlation between Horizontal Intra Industry Trade (HIIT) and RCA.

The last factor of economic modalities is Regional convergence. It is actually a forecast toward the formation of EAR. A positive trend of convergence between ASEAN and CJK will act well to create EAR.

The followings are the detailed description about the variables included in the economic modalities:

2.3.1 THE SPILLOVER EFFECT FROM JAPAN-KOREA-CHINA TRIANGULAR TRADE TO ASEAN 4

The spillover effect from CJK to ASEAN4 is a direct consequence from Regionalism in CJK and it serves as one of the building blocks for the formation of EAR (Hastiadi, 2010). As giants of Asia, the growth of Japan, Korea and China will most likely create positive effect to the neighboring countries. Regionally speaking, the growth of North East Asia will boost the East Asian growth as whole, in this sense we might want to exercise its effect to ASEAN countries. To simplify things, this paper limits the effect to ASEAN4 since these countries have the same economic characteristics. This paper employs static panel data model for this purpose. The panel data is analyzed annually from 1989 to 2007 which consist of ASEAN 4's Export, Import, Consumption, Investment, Government expenditure, GDP, and GDP of Japan, China, Korea. The data is taken from WDI online database. The following sections provide the analysis.

A static panel data model can be specified as follows:

$$Y_{it} = \mathbf{X}_{it}\beta + \lambda_t + \eta_i + \varepsilon_{it} \quad t=1,...,T \quad i=1,...,N \tag{15}$$

Where: λt and ηi are time and individual specific effects respectively, x it is a vector of the explanatory variables, (i) is the time component of the panel, (N) is the cross-section dimension (or the number of cross-section observations), and N x T is the total number of observations. The idea is to run the models in order to have a consistent estimator for the β coefficients, and the model (fixed or random) choice depends on the hypothesis assumed for the relationship between the error-term (εit) and the regressors (x it). The static panel data analysis developed in the empirical section of the paper was based on two basic panel models, the fixed (FE) and the random (RE) effect models. Since the time periods (1989-2007) exceed the individual observations (Indonesia, Malaysia, Thailand, Philippines) therefore FE is considered as the most appropriate method (Nachrowi and Usman, 2008). The model is described as follows:

$$Y_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + ... + \gamma_N W_{Nt} + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + ... + \delta_t Z_{iT} + e_{it} \tag{16}$$

Where:

Y_{it} = GDP growth of ASEAN 4 for time t and country i

X_{it} = Independent Variables (ASEAN 4 consumption growth, investment growth, government expenditure growth, export-import growth and Japan-China-Korea GDP growth for time t)

W_{it} and Z_{it} are dummy variables which are defined as follows:

W_{it} = 1 for country i, where i = Indonesia, Malaysia, Philippines, Thailand

= 0 for others

Z_{it} $= 1$ for Period t where t = 1989, 1990..., 2007

$= 0$ for others

The above structural equation is actually a simultaneous equation in which employs causality relationship. To see the simultaneity, the above model can be decomposed into four parts:

$$Y_t = \beta_1 + \beta_2 C_t + \beta_3 I_t + \beta_4 G_t + \beta_5 X_t + \beta_6 JGDP_t + \beta_7 CGDP_t + \beta_8 KGDP_t \qquad (17)$$

$$C_t = \beta_1 + \beta_2 C_{t-1} + \beta_3 Y_t \qquad (18)$$

$$I_t = \beta_1 + \beta_2 r_t + \beta_3 Y_t \qquad (19)$$

$$X_t = \beta_1 + \beta_2 EX_t + \beta_3 C_t + \beta_4 JGDP_t + \beta_5 CGDP_t + \beta_6 KGDP_t \qquad (20)$$

Equation 17 describes the effects of ASEAN 4 consumption (C_t), investment (I_t), government expenditure (G_t), export growth (X_t) and the North East Asian GDP growth ($JGDP_t$, $CGDP_t$, $KGDP_t$) on ASEAN4 GDP growth (Y_t). From the model, it is clear that consumption growth, investment growth and export growth have their own determinants that simultaneously form the structural equation. Consumption growth (C_t) is formed by last year's consumption growth (C_{t-1}), and the present GDP growth (Y_t), Investment (I_t) on the other hand is influenced by the interest rate (rt) and the GDP growth (Ct). It is also expected that exchange rate (EX_t), consumption growth (C_t) and trading partners economic growth ($JGDP_t$, $CGDP_t$, $KGDP_t$) have some influences on export growth (X_t) for ASEAN 4.

From the structural equation, we can divide the variables into two, endogenous and predetermined (exogenous). The first one is treated as stochastic while the latter as non stochastic. To see which simultaneous model that can satisfies the need, we have to address the identification process. If K is the number of exogenous variables within the model, k is the number of exogenous variables within the equation and M is the number of endogenous variable within the model, so the criteria to state whether an equation is unidentified, just identified, or over identified are describe as follows:

If K-k < M-1, so the equation is unidentified

If K-k = M-1, so the equation is exactly identified

If K-k > M-1, so the equation is over identified

Based form the above criteria, table 2 summarize the order condition from the system:

Table 2. Order condition

No	Equation	Criteria	Conclusion
1	Y_t	$6 > 2$	Over Identified
2	C_t	$9 > 1$	Over Identified
3	I_t	$9 > 1$	Over Identified
4	X_t	$6 > 1$	Over Identified

For the case of over identified, we might want to employ two stage least squares (2SLS) approach as an elegant way to deal with such problem. 2SLS regression analysis, as suggested by Angrist and Imbens (1995). Below is the detailed procedure of 2SLS:

In stage one, least square regression on the reduced form equation has to take place by which it can yields C_{t-1}, Y_{t-1}, r_t, G_t, EX_t, $JGDP_t$, $CGDP_t$, $KGDP_t$ as the instrumental variables, therefore all equations from 15 up to 18 have to be transformed into reduced form equation as the followings:

$$Y_t = \Pi_1 + \Pi_2 C_{t-1} + \Pi_3 Y_{t-1} + \Pi_4 r_t + \Pi_5 G_t + \Pi_6 EX_t + \Pi_7 JGDP_t + \Pi_8 CGDP_t + \Pi_9 KGDP_t \quad (21)$$

$$C_t = \Pi_{10} + \Pi_{11} C_{t-1} + \Pi_{12} Y_{t-1} + \Pi_{13} r_t + \Pi_{14} G_t + \Pi_{15} EX_t + \Pi_{16} JGDP_t + \Pi_{17} CGDP_t + \Pi_{18} KGDP_t \quad (22)$$

$$I_t = \Pi_{19} + \Pi_{20} C_{t-1} + \Pi_{21} Y_{t-1} + \Pi_{22} r_t + \Pi_{23} G_t + \Pi_{24} EX_t + \Pi_{25} JGDP_t + \Pi_{26} CGDP_t + \Pi_{27} KGDP_t \quad (23)$$

$$X_t = \Pi_{28} + \Pi_{29} C_{t-1} + \Pi_{30} Y_{t-1} + \Pi_{31} r_t + \Pi_{32} G_t + \Pi_{33} EX_t + \Pi_{34} JGDP_t + \Pi_{35} CGDP_t + \Pi_{36} KGDP_t \quad (24)$$

Note: Π is $\dfrac{\beta}{1-\beta}$

From stage one we get $\hat{Y}_t , \hat{C}_t , \hat{I}_t , \hat{X}_t$ as the fitted values with which we can run for the second stage. In stage two, these fitted values are then plugged in to the main equation. The last step is to run least squares on each of the above equations to get 2SLS estimation as described in table 6.

2.3.2 COMPLEMENTARITY

A high degree of complementarity is assumed to indicate more favorable prospects for a successful trade arrangement in East Asia vis a vis Regionalism. The best way to measure product complementarities it is through Trade Complementary Index (TCI). TCI is a type of overlap index. It measures the degree to which the export pattern of one country matches the import pattern of another. Changes over time may tell us whether the trade profiles are becoming more or less compatible.

Mathematical definition:

$$TCI = \left[1 - \left[\sum \left| \frac{\sum_w m_{iwd}}{\sum_w M_{wd}} - \frac{\sum_w x_{isw}}{\sum_w X_{sw}} \right| \right] : 2 \right] \times 100$$

(25)

Where d is the importing country of interest, s is the exporting country of interest, w is the set of countries under study, i is the set of industries, x is the commodity export flow, X is the total export flow, m the commodity import flow, and M the total import flow. In words, we take the sum of the absolute value of the difference between the sectoral import shares of one country and the sectoral export shares of the other. Dividing by 2 coverts this to a number between 0 and 1, with zero indicating all shares matched and 1 indicating none did. Subtracting from one reverses the sign, and multiplying by 100 puts the measure in percentage terms. It takes a value between 0 and 100, with zero indicating no overlap and 100 indicating a perfect match in the import/export pattern. The data is collected from The United Nations Commodity Trade database (COMTRADE), the World Trade Database (WTD) maintained by Statistics Canada, and the GTAP database from Purdue University.

2.3.3 COMPARATIVE ADVANTAGE

Comparative advantage underlies economists' explanations for the observed pattern of inter-industry trade. In theoretical models, comparative advantage is expressed in terms of relative prices evaluated in the absence of trade. Since these are not observed, in practice we measure comparative advantage indirectly. Revealed comparative advantage indices (RCA) use the trade pattern to identify the sectors in which an economy has a comparative advantage, by comparing the country of interests' trade profile.

$$RCA = \frac{\sum_d x_{isd} / \sum_d X_{sd}}{\sum_{wd} x_{iwd} / \sum_{wd} X_{wd}}$$

(26)

Where s is the country of interest, d and w are the set of all countries in the world, i is the sector of interest, x is the commodity export flow and X is the total export flow. The numerator is the share of good i in the exports of country s, while the denominator is the share of good i in the exports of the world. It takes a value between 0 and $+\infty$. A country is said to have a revealed comparative advantage if the value exceeds unity. The data is collected from The United Nations Commodity Trade database (COMTRADE), the World Trade Database (WTD) maintained by Statistics Canada, and the GTAP database from Purdue University

2.3.4 INTRA INDUSTRY TRADE

The intra industry trade (IIT) is a measure of the degree to which trade in a particular sector represents intra-industry trade (based on scale economies and/or market structure). By engaging in IIT, a country can reduce the number of similar goods it produces, and benefit from scale economies. Higher IIT ratios suggest that these sources of gains are being exploited. IIT may also indicate that adjustment costs would be lower with trade expansion.

$$IIT = \frac{\left[(X_{ij} + M_{ij}) - \left| X_{ij} - M_{ij} \right| \right]}{(X_{ij} + M_{ij})} \qquad (27)$$

Where X_{ij} and M_{ij} are home country's exports of industry i goods to country j and imports of industry i goods from country j, respectively. The absolute value of $X_{ij} - M_{ij}$ denotes that the sign of the trade balance is ignored. $IIT_{ij} = 1$ if all trade in indutry i goods is intra-industry trade, i.e. $X_{ij} = M_{ij}$ and $IIT_{ij} = 0$ if all trade in industry i goods is inter-industry trade, i.e. $X_{ij} = 0$ or $M_{ij} = 0$. When it is expressed in percentage terms, it should multiply by 100 then index would vary from zero to 100 and can be expressed as a percentage of the total trade. In other words, higher index values are associated with greater intra-industry trade as a proportion of total trade which serves best for creating regionalism in East Asia. The data is collected from The United Nations Commodity Trade database (COMTRADE), the World Trade Database (WTD) maintained by Statistics Canada, and the GTAP database from Purdue University.

2.3.5 REGIONAL CONVERGENCE

In this paper, we measure the trend toward openness vis a vis regionalism by using ECM for the RPL index in North East Asia (CJK). Since we include two sub regions, the best way to measure it is by using test of convergence of the term of trade for CJK and ASEAN4. The notion of convergence implies that differences between the series must follow a stationary process (Bernard & Durlauf, 1996; Oxley & Greasley, 1995). Thus, stochastic convergence implies that the sub regions will form the so called EAR. Following Bernard and Durlauf (1995), stochastic convergence occurs if the differential log trade system, yt, follows a stationary process, where $y_t = \text{ASEAN4tot}_t - \text{CJKtot}_t$ where ASEAN4tot_t is the logarithm term of trade of ASEAN4, and CJKtot_t is logarithm term of trade of CJK. Both series are in the first difference (I(1)).

2.4 THE PATHS TOWARD EAR

Feng and Genna (2003) argued that homogeneity of domestic institutions is needed to go hand in hand with the regional integration process. Moreover, they pointed out inflation, taxation and government regulation as representing factors for the economic institutions. Another variable that might enhance integration is population as already identified by Tamura (1995). He argued that large population is a catalyst for integration due to economic agglomeration. Scholars like Milner and Kubota (2005) even pointed out democracy as an important factor that could foster regionalism. Their empirical work on the developing countries from 1970-1999 showed that regime change toward democracy was associated with trade liberalization, and regionalization.

Given those works, this paper tries to combine the variables into one complete model that can determine the formation of EAR. The formula as follows:

$$Open_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + ... + \gamma_N W_{Nt} + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + ... + \delta_t Z_{iT} + e_{it} \qquad (28)$$

Where:

$Open_{it}$ =   Regionalism for time t and country i

X_{it} =   Independent Variables (ASEAN4 + CJK's rail ways, tax, democracy, governance, industry, gross school enrolment rate, inflation and population)

W_{it} and Z_{it} are dummy variables which are defined as follows:

W_{it} = 1   for country i, where i = Indonesia, Malaysia, Philippines, Thailand

                China, Japan, Korea

    = 0   for others

Z_{it} = 1   for Period t where t = 1998, 2000..., 2007

    = 0   for others

The paper employs fixed effect model to estimate the variables. The followings are the explanations for the variables used:

i) the paper use the proxy of trade openness (net export per GDP) for regionalism. The variable of openness is used to represent regionalism since regionalism creates openness to some sectors of economy. Openness here functions as dependent variable that is determined by some independent variables.

ii) Railways as goods transported (million ton-km) is used to explain physical infrastructure readiness. Pairing up with this variable is the gross school enrolment rate which serves as the basic for human capital infrastructure. Sound infrastructure (both physical and human) will provide steadiness and assuredness in making investment among members. In other words, good infrastructure will only lead to a sustainable intra trade and investment that serve as the basis of EAR.

iii) To measure democracy, the indices produced by Freedom House (2000) that is the index of democracy called POLITY. Democratization is expected to open up new avenues of support for freer trade vis-à-vis regionalism.

iv) Moving to the next variable is the taxation policy, the higher the rate the more it will diminish the prospects of EAR.

v) Other variable that also matters is governance which is measured by the six governance indicators estimated by Kaufmann (2003). These indices describe various aspects of the governance structures of a broad cross section of countries, including measures of Voice and Accountability, Political stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. In general, the Governance index provides explanatory power to explain the capability and quality of governance from

each member country. The better indicator a country has the more it has the chance to capitalize regionalism.

vi) Macroeconomic variable which is represented by inflation creates ambiguous expectation. High inflation might deter the formation of EAR since the very beginning but some scholars prove the other way around. One of argument that supporting the latter proposition is given by Cohen (1997) who argued that the inflationary policy (high inflation) resulting from the government action will tend to raise the obstacle to private investors which in turn demand for greater integration. The loss of discretion in the fiscal and monetary policy will then reduced the risk of uncertainty.

vii) Large market together with the ongoing industrialization process sums up the last aspects of EAR formation. The sheer size of the East Asian population creates not only the potential demand for the goods traded in the region but also the supply of labor force and the low absolute level of wages. In other words, Lewis's unlimited supply of labor will persist longer in East Asia. The process will lead to an upward trend towards industrialization (value added as percentage from GDP) in the region. The trend is very important since homogeneity in industrialization among countries in the region will smooth the progress of EAR.

3.0 RESULTS AND DISCUSSIONS

3.1 THE SHORT AND LONG RUN EQUILIBRIUM

3.1.1 THE LONG RUN EQUILIBRIUM

From Table 3 we can see that, GDP and export relationship in the CJK yields stability in the long run. It is proven by the stationarity of the error term in each of the cases. The cointegration test that proves long run equilibrium describes that the model is not spurious. Export is proven to be the engine of economic advancement in these countries. It approves some previous research as the likes of Dorasami (1996), Ekanayake (1999) and Fosu et al, (2006) of export and economic growth relationship.

Table 3. Cointegration Parameters

Dependent Variables Independent Variables	GDP (Japan)	GDP (China)	GDP (Korea)
Export to Japan	na	Stationer	Stationer
Export to China	Stationer	na	Stationer
Export to Korea	Stationer	Stationer	na

3.1.2 THE SHORT RUN EQUILIBRIUM

Equation 8 has shown that the long run relation between Export and GDP in Japan, China and Korea would be balanced by the previous error. Table 4 provides the short run output for CJK.

Table 4. Equilibrium Errors

Dependent Variables Independent Variables	GDP (Japan)	GDP (China)	GDP (Korea)
Equilibrium error for Export to Japan	na	-1.0 9 ***	-0.23 *
Equilibrium error for Export to China	-0.18 ***	na	-0.48 ***
Equilibrium error for Export to Korea	0.017773	-1.33 ***	na

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

China: The residuals for the relationship between China's GDP with China's Export to Japan and Korea are significant. These suggest that there is an equilibrium error in the short run. The negative signs put the Export for a constant rise to reach the long run equilibrium. In China's case, the adjustment rate or the phase of acceleration for the long run equilibrium is very fast. It can be seen through the absolute value of the equilibrium error coefficients which are 1.09 and 1.33 for China's relationship to Korea and Japan respectively.

Japan: In the short run, there is an equilibrium error for Japan's Export to China with its relation to Japan's GDP. The coefficient of residual gives negative sign (-0.18), which means that Japan's Export to China is below the long run equilibrium. This will only lead to a rise of export for the following periods. But it is important to note that the absolute value of the coefficient (adjustment rate) is very small (0.18). This suggests that Japan's Export to China is moving in a slow phase to reach the long run equilibrium.

As for the relationship between Japan and Korea, the equilibrium error of the export trend is not significant. These suggest that Japan's GDP is adjusting to the change in Japan's export to Korea in the same period of time. In other words, Japan and Korea relationship in terms of export has already reached steady state level.

Korea: Korea's case is somewhat similar to China. The residuals for the relationship between Korea's GDP with Korea's Export to Japan and China are significant. It yields similar explanation with China's case. However, the adjustment rate for the case of Korea is slower than China's but it is still faster than Japan's. It gives the absolute value of 0.23 and 0.48 for Korea's trade relationship to Japan and China respectively.

From the ECM, we can conclude that North East Asian region is not moving at the same phase to reach the long run equilibrium, which in this case Japan is the slowest one. The insignificant value of acceleration rate for the case of Japan trade relationship with Korea is also important point to note since it can be interpreted as an exhausted Korean market for Japanese products (steady state condition). These facts are very crucial since it diminishes Japan's role as the sole leader in the north East Asia.

Although whoever the leader is not to important, but the stalled effect of a country's economic growth in these region will only serve as stumbling blocks in creating East Asian welfare. The rising growth of China and Korea will soon meet its end mimicking the pattern of Japan if no serious action is sited. Therefore, in order to strengthen regional welfare and accelerate the phase of adjusting, economic integration must take place.

3.2 TRADE OPENNESS

From table 5 we can see that generally trade openness is affecting a country's GDP in a positive way. But in the short run, trade openness in the CJK is still below the equilibrium. This suggests that trade openness is still finding its form in this area. Although we might not see regionalism which liberalize trade in the short run, but the trend towards openness in trade Vis a Vis regionalism is progressing in a respectful manner. We can see this through the adjustment rate for the long run equilibrium (the coefficients of residuals) that yields an average of 1.1; consequently we might see regionalism in North East Asia happen in the future.

Table 5. Cointegration Parameters

Dependent Variables Independent Variables	GDP (Japan)	GDP (China)	GDP (Korea)
Equilibrium error for Openness to Japan	na	-1.23 ***	-1.31 ***
Equilibrium error for Openness to China	-1.15 ***	na	-0.97 ***
Equilibrium error for Openness to Korea	-0.72 **	-1.24 ***	na

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

3.3 ECONOMIC MODALITIES

3.3.1 INCOME RELATION

As expected, IIT, TCI and Spillover effect for the case of Japan (table 6), Korea (table 7) and China (table 8) have positive influence on ASEAN4's income (GDPCAP). The result shows us the importance of these factors for ASEAN's welfare.

Table 6. Japan-ASEAN4 relation

Dependent Variable: LOG(GDPCAP(ASEAN4))

Independent Variables	Coefficient
IIT Japan-ASEAN4	2.383511***
TCI Japan-ASEAN4	0.019909***
Spillover Effect (Japan-ASEAN4)	3.461189***
TAX	-0.256858***
R-squared 0.919931	

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Table 7. Korea-ASEAN4 relation

Dependent Variable: LOG(GDPCAP(ASEAN4))

Independent Variables	Coefficient
IIT Korea-ASEAN4	3.412017***
TCI Korea-ASEAN4	0.027086**
Spillover Effect (Korea-ASEAN4)	1.425999**
TAX	-0.071816**
R-squared	0.850145

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Table 8. China-ASEAN4 relation

Dependent Variable: LOG(GDPCAP(ASEAN4))

Independent Variables	Coefficient
IIT China-ASEAN4	0.233899
TCI China-ASEAN4	0.018696
Spillover Effect (Korea-ASEAN4)	0.389208
TAX	-0.232781***
R-squared	0.526109

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

The spillover effect variable which is included in the above regression has a more detail specification. Below is the explanation:

Spill-Over Effect: From table 9 we can conclude that the North East Asian (Japan, Korea and China) economic growth boost the ASEAN4 economic growth, it confirms the proposition of this study. Investment flows, in the form of FDI, has also operated as a dominant integrating power in East Asia as whole. Although we cannot find legitimate determinant for FDI in the output, but it is clear that FDI is trade related in nature. With its essentially open and outward-looking economies, the region is highly dependent on foreign investment for its economic growth. But still, the boosting power is not as much as in the spillover effect from the giant countries of Japan, Korea and China. Japan, in terms of GDP growth, has the biggest influence towards ASEAN4 followed by China and Korea at the second and third place. This fact is described by the coefficient parameter that gives the value of 0.546, 0.311 and 0.250 for Japan, China and Korea respectively.

The ranking of influence is presumably caused by the number FDI inflows to ASEAN from these countries as described in Table 10. The only bias is on China and Korea, even though the cumulative FDI from Korea to ASEAN4 was bigger than China's, but it does not seem to be reflected on the ranking of influence. As for this, it is assumed that the high economic growth rate of China had been the major contributing factor (Urata, 2008) that overtook the influence of Korea's cumulative FDI flow to ASEAN4. However, such factor is not enough to surpass (From the ECM simulation as confirmed earlier, we found that China has taken over Japan's role in East Asia. But this is true if we address the long run effect. This section only measures the present condition in the absence of the intertemporal problem.) Japan's influence to ASEAN4's economic growth since Japan's FDI contribution to ASEAN4 outweighed China's by more than one hundred folds.

The story goes hand in hand with the flying-geese hypothesis that was developed by Japanese economist, Kaname Akamatsu (1935). his model has been frequently proposed to examine the patterns and characteristics of East Asian economic integration. "The premise of the flying-geese pattern suggests that a group of nations in this region are flying together in layers with Japan at the front layer. The layers signify the different stages of economic development achieved in various countries" (Xing, 2007). In the flying-geese model of regional economic development, Japan as the leading goose leads the second-tier geese (China Korea) which, in their turn, are followed by the third-tier geese (ASEAN4).

Table 9. Two Stage Least Squares Regression Output

Dependent Variables / Independent Variables	Y	C	I	X
Y	na	0.776 ***	-0.087	na
C	0.470 ***	na	na	-0.64 **
I	0.025	na	na	na
X	0.072*	na	na	na
Instrumental variables				

Y (Japan)	0.546 **	na	na	2.949***
Y (China)	0.311 **	na	na	1.112 ***
Y (Korea)	0.250 **	na	na	-3.760
C (-1)	na	0.01	na	na
r	na	na	0.137	na
Y (-1)	na	na	na	na
EX	na	na	na	0
G	0.122**	na	na	na

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Table 10. FDI flows to ASEAN 4 (US$ million)

Host country	Indonesia	Thailand	Malaysia	Phillipines	Total Cummulative 1995-2003
Source Country					
Japan	288.06	8,096.02	4,761.11	3,055.68	16200.87
Korea	331.88	235.58	98.51	238.13	904.1
China	-36.78	50.16	120.72	4.07	138.17

Source: ASEAN secretariat

Another important thing to note is the low significant value of exports within ASEAN4 in terms of creating GDP growth. These are intriguing facts since export is considered as the main determinant of GDP growth. It is suspected that the effect of rivalry between ASEAN4 members and China is the main factor which creates insignificant value. This factor is supported by Holst and Weiss (2004) hat pointed out China's emergence for creating short and medium term direct and indirect competition between ASEAN and China. They argued that ASEAN and China are experiencing intensified export competition in prominent third markets. This can lead to painful domestic structural adjustments within the ASEAN in the short run. Then again the mind set in viewing the economic opportunity or threat depends on whether China's economy is perceived as complementary or competitive vis-à-vis individual ASEAN economies and on whether the latter economies are able to exploit their complementary opportunities and overcome the competitive threats.

Chia (2006) argued that "the differences in resource and factor endowments, production structures and productivities lead to a complementary relationship, whereas similarities in these areas lead to a competitive relationship".

3.3.2 THE NEXUS BETWEEN RCA AND IIT

A priori we expected that RCA would explain the variation of the VIIT and that the correlation would be positive. The results confirm that prediction. Table 11 proof that the IIT used in the model is the VIIT.

As we used only a simple model, we must be careful with the conclusions. But, there is some empirical evidence against the prediction made by theory for separating the determinants of horizontal and vertical IIT. According to the theory, HIIT is explained by the interaction between economies of scale and (horizontal) product differentiation. VIIT can be explained by comparative advantages in the context of Heckscher –Ohlin (H-O) or Ricardo- Heckscher-Ohlin (R-H-O) framework, without recourse to economies of scale.

Table 11. RCA-IIT nexus

Dependent Variable: IIT

Independent Variable	Coefficient
RCA	0.016003***
C	0.511111
R-squared	0.412754

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Following Tharakan and Kerstens (1995), "The latter study (Tharakan,1989) which carries out a product-by-product analysis (corresponding to SITC 5-digit) suggests that the observed IIT is partly due to H-O-type determinants and partly caused by other factors such as vertical, and in some cases, horizontal product differentiation." Fukao et al (2003) argues that VIIT is likely to be driven by differences in factor endowments. Therefore, it is expected that VIIT to be more clearly seen between developing and developed economies.

Kimura and Ando (2004) describe the production networks in East Asia as vertical intra-industry trade phenomena that involves back and forth links where by several countries participate in various stages of the production chains. Having said this, it is interesting to know about the motivations of CJK in making VIIT in ASEAN.

Table 12 shows us that for the case of Japan, difference in the level of economy (LOG(WAGE)) and the logistic performance are the most influential factors that contributes to the motivations of making VIIT in ASEAN. As for the case of Korea (table 13), Korean motivation is most likely influenced by the market power (COMPETITIVENES) and the trend toward industrialization process in ASEAN (INDUSTRY), let alone the difference level in Economy (LOG(WAGE)). But, from the same scheme we cannot see the pattern of VIIT for China since China and ASEAN are considered as developing countries which do not have substantial gap in income. Therefore, it is irrelevant when we try to calculate VIIT of China to ASEAN (table 14). The income gap result is similar to that in Greenaway, Hine and Milner (1994). They argue that the greater the difference in the level of economy will lead to a greater share of VIIT.

Table 12. Japanese Motivation in doing VIIT to ASEAN4

Dependent Variable: IIT Japan-ASEAN4

Variable	Coefficient
LOG(WAGE)	-0.050785***
LOGISTIC	0.163096**
INDUSTRY	-0.005127
COMPETITIVENES (Japan-ASEAN4)	-0.002783
R-squared	0.912621

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Table 13. Korean Motivation in doing VIIT to ASEAN4

Dependent Variable: IIT Korea-ASEAN4

Variable	Coefficient
LOG(WAGE)	-0.041684***
LOGISTIC	0.154065
INDUSTRY	0.016522***
COMPETITIVENES (Korea-ASEAN4)	0.0161128*
R-squared	0.813666

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

Table 14. Chinese Motivation in doing VIIT to ASEAN4

Dependent Variable: IIT China-ASEAN4

Variable	Coefficient
LOG(WAGE)	0.001195
LOGISTIC	0.026256
INDUSTRY	-0.001101
COMPETITIVENES (China-ASEAN4)	-0.002010
R-squared	0.025739

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

3.3.3 REGIONAL CONVERGENCE

Stochastic convergence is tested by using the conventional Augmented Dickey-Fuller (ADF) regression which shows a significance result in proving stationarity for y_t (Table 15). This indicates long-run convergence between the two trading systems.

Table 15. ADF Test for Term of Trade

ADF Test Statistic	-3.519465	1% Critical Value*	-3.7204
		5% Critical Value	-2.9850
		10% Critical Value	-2.6318

*MacKinnon critical values for rejection of hypothesis of a unit root.

A major drawback of the standard ADF unit root test procedure is that the power of the test is quite low. To overcome this problem, the paper utilizes cointegration test as suggested by Baharumshah et al. (2007). The following is the Engle Granger Cointegration:

$$U_t = ASEANtot_t - \beta_0 - \beta_1 CJKtot_t \qquad (29)$$

The residual (Ut) gives stationary result (see table 16) which means that the two regions have long run relationship (convergence). It is worth to say that with the test of convergence, EAR will be there to stay in the long run. The robust finding surely creates optimistic view for EAR.

Table 16. ADF Test for Cointegration Residual

ADF Test Statistic	-5.623714	1% Critical Value*	-3.7204
		5% Critical Value	-2.9850
		10% Critical Value	-2.6318

*MacKinnon critical values for rejection of hypothesis of a unit root.

3.3.4. FACTORS AFFECTING EAR

Table 17 shows us that Economic and political factors such as Infrastructure (railways and gross education), governance, taxation policy, industrialization and Democracy have significant effect towards Regionalism (Openness) in East Asia while Inflation gives insignificant role. The signs of coefficient for railways, gross education, governance and industrialization are positive which mean the bigger the variable the more they create Openness. The negative sign of the coefficient for tax describes the opposite relation between corporate tax rate and the future prospect of EAR, the higher the rate the more it will the deteriorate the EAR. The negative sign of democracy is against expectation but it is still rational since democracy is still finding its form in East Asia. We have to define what democracy really means in order to make it works. The insignificant role of inflation for EAR is expected due to the ambiguity given.

Table 17. Factors Affecting Openness

Dependent Variable: OPENNES		
Independent Variable	**Coefficient**	**t-Statistic**
LOG(RAILWAYS)	0.115860	2.059379**
TAX	-0.029831	-3.530943***
DEMOCRACY	-0.004282	-2.051852**
GOVERNANCE	0.257508	3.860438***
INDUSTRY	0.049930	4.861010***
LOG(POPULATION)	0.863634	2.154852**
GROSS EDUCATION	0.011445	2.217493**
INFLATION	-0.001545	-0.441719
R-squared	0.99251	
Adjusted R-squared	0.98975	

Note: Statistical significance is indicated by *(10%), **(5%), and ***(1%)

4.0 CONCLUSION

We have made an interim conclusion that export leads the overall growth in North East Asia. However, it is important to note that Japan's phase of adjustment towards long run equilibrium is quite slow compared to the likes of Korea and China. This only yields as a stumbling block in forming regionalism in East Asia. The hard task is about making these countries move together in the same phase, which is why regionalism has to take place.

Since regionalism is an abstract term, the use of RPL index is essential. RPL index is a proxy of outward orientation of a country or in other words it is a representation of regionalism. Regionalism in this case goes hand in hand with openness in which it creates trade arrangements that liberalize some sectors in the economy. The ECM simulation gives a clear picture of the current form of openness which is below the equilibrium. It suggests that the trend towards regionalism is still far behind. It somewhat confirms the ineffectiveness of current triangular trade in North East Asia. It is expected that regionalism can eliminates such bias in trade.

Moreover, since North East Asian countries has a big scale of economy, its economic development will substantially affect the neighboring countries in East Asia specifically ASEAN4. It is demonstrated by the large share of China-Japan-Korea growth that affects ASEAN4's GDP.

In the short run, there is a rivalry competition between China and ASEAN. However, in the long run regionalism is expected to accommodate export growth for East Asia as whole. In a sense of creating integration in East Asia, there is a need to set up more formal institutional mechanisms for trade. It is rational for such mutually dependent countries in the region to institutionalize de facto integration through the establishment of regional arrangements (Kawai, 2005). The growing significance of China, Japan and Korea market for ASEAN4 along with other economic modalities such as product complementarities, comparative advantage and intra industry trade in the region will then serve as the basis for a single East Asian Wide FTA.

The next task is to shape the future of EAR, but then will the future exist? Using the test of convergence, it is found that EAR will be there to stay. The robust finding surely creates optimistic view for EAR. But knowing the future is not enough, we still need to find out the clear path to reach the future. What are the paths then? From a static panel data simulation it is found that sound physical infrastructure, good governance, inflation, competitive taxation policy, sizeable market and the trend towards industrialization are the main factors that serve as building blocks for EAR.

To wrap up, EAR will enable the region to cope with the future challenges of globalization and remain internationally competitive. An integrated East Asia would lead to the advancement in economies of scale, fuller development of production networks. Moreover, Chia (2007) stated that EAR could help the less developed East Asian economies which would otherwise become marginalized as they lack the attraction of sizeable market and lack negotiating resources.

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