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Regionalism in East Asia: The Way Forward

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Regionalism in East Asia: The Way Forward[☆]

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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. This paper uncovers the inefficient scheme through Engle-Granger Cointegration and Error Correction Mechanism. This paper also proves that China's action to conduct FTA with ASEAN countries will create Baldwin's domino effect to Japan and Korea. Moreover, the paper underlines the importance of triangular trade agreement for accelerating the phase of growth in CJK which eventually create a spillover effect to East Asia as a whole. Employing Two Stage Least Squares in a static panel fixed effect model, the paper argues that the spillover effect will function as an impetus for creating region-wide FTA. Furthermore, the paper also identifies a number of economic and political factors that can support the formation of East Asian Regionalism.
JEL Classifications:F15, C13, C22, C33

Keywords: regionalism, engle-granger cointegration, error correction mechanism, fixed effect, two stage least squares

1. Introduction

In this new millennium, regionalism has begun to emerge 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 trend towards regionalism has 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 cannot be put into practice without these countries' strong support. Unfortunately, the lack of institutional arrangements among these giant countries has stalled the overall welfare effect for the East Asian communities. The present driving force of the China-Japan-Korea (CJK) relationship is the market by which in some sense is not enough therefore the more institutionalized approach is needed to join these activities so that it can sustain the economic growth in the long run. The main focus of the institutionalization in trade is to make these countries grow together with which can make positive externalities throughout the East Asian region. In the long run it is expected that CJK will lead to regionalism in East Asia.

[☆] Part of my PhD dissertation.

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The remainder of this chapter is organized as follows. The second section studies the basic concepts from the literature review. The third section covers materials and methods. The fourth section examines the result of the regressions. The last section presents conclusion and some concluding remarks.

2. Literature Review

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 emergence of China as a regional manufacturing center is a dominant factor that contributes the trade shift.

It is clear that trade activity is very intense by which performs as the major contributing factor for economic growth in the region (Watanabe, 2008). The vast amount of trade has been very likely steered up by the amount of FDI flows among them with Japan as the sole leader of it. In other words, the creation of economic transformation in China and Korea that geared up the trade was enchanted by Japan's role in making investment in those countries.

We have witnessed the deepening in economic activity between China, Japan and Korea, yet regionalism in the North East Asian countries is considered to be a long and tiring process given various obstacles. To be said, there are historical, cultural political, ideological and other factors at play, hindering the move towards the formation of a formal economic grouping. According to Wong et al (2004), the significance of a CJK FTA would be highlighted in terms of regional integration. First, the CJK FTA will bring massive economic benefits to the three countries in terms of trade, production and economic welfare. Moreover, the establishment of FTA will also contribute to introducing suitable agreements that will accelerate trade and investment in the region. Truly, trilateral FTA's will be much more beneficial to all the three countries in the region than all bilateral FTA's among the countries. Moreover a solid groundwork of CJK trilateral FTA will give the path towards East Asian integration.

As far as the CJK FTA is concern, up until now the CJK countries still cannot find their way to conclude the negotiations. It is true that China, Japan and Korea have made massive progress in the wake of FTA signings with other countries, but none of which are accomplished among them. The ongoing economic integration in Northeast Asia is exclusively informal, driven by market forces without any institutional support framework.

3. Methodology

3.1. Measuring the short and the long run equilibrium of export to GDP

If a regression is estimated with non-stationary data and residuals, then the regression is spurious. To overcome this problem the data has to be tested for a unit root (i.e. whether it is stationary). If both sets of data are I(1) (non-stationary), then if the regression produces an I(0) error term, the equation is said to be cointegrated.

The most basic non-stationary time series is the random walk, the Dickey-Fuller test essentially involves testing for the presence of a random walk as presented in equation 1.

$$y_t = y_{t-1} + u_t \tag{1}$$

Although this has a constant mean, the variance is non-constant and so the series is non-stationary. If a constant is added, it is termed a random walk with drift. To produce a stationary time series, the random walk needs to be first-differenced as seen from equation 2:

$$\Delta y_t = u_t \quad (2)$$

The Dickey-Fuller test is used to determine if a variable is stationary. To overcome the problem of autocorrelation in the basic DF test, the test can be augmented by adding various lagged dependent variables. This would produce equation 3:

$$\Delta y_t = (\rho - 1)\, y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta y_{t-1} + u_t \quad (3)$$

The correct value for m (number of lags) can be determined by reference to a commonly produced information criteria such as the Akaike criteria or Schwarz-Bayesian criteria. The main function is to maximize the amount of information. As with the DF test, the ADF test can also include a drift (constant) and time trend.

To test for cointegration between two or more non-stationary time series, it simply requires running an OLS regression, saving the residuals and then running the ADF test on the residual to determine if it is stationary. The time series are said to be cointegrated if the residual is itself stationary. In effect the non-stationary I(1) series have cancelled each other out to produce a stationary I(0) residual.

$$y_t = \beta_0 + \beta_1 x_t + u_t \quad (4)$$

Where y and x are non-stationary series.

3.1.1. Defining the Long Run Equilibrium: Engle Granger Cointegration Test

Cointegration method is notably the best way to measure the long run equilibrium (Dritsakis et al, 2005, Habibi and Rahim, 2009; Khosravi and Karimi, 2010). In doing Engle Granger Cointegration test, this study divides the export relationship in to three parts which are described in the following equations:

(i) China and Japan Export Relationship

$$CHGDP = \beta_0 + \beta_1 ExportJP + u_t \quad (5)$$
$$JGDP = \beta_0 + \beta_1 ExportCH + u_t \quad (6)$$

(ii) Korea and Japan Export Relationship

$$KRGDP = \beta_0 + \beta_1 ExportJP + u_t \quad (7)$$
$$JPGDP = \beta_0 + \beta_1 ExportKR + u_t \quad (8)$$

(ii) China and Korea Export Relationship

$$CHGDP = \beta_0 + \beta_1 ExportKR + u_t \quad (9)$$
$$KRGDP = \beta_0 + \beta_1 ExportCH + u_t (10)$$

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 cointegrate Export and GDP since the trend in export and GDP would offset to each other, creating a stationary residual. The residual is called a cointegration 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 cointegrated in the first difference which can be notated with I(1).

3.1.2. Defining the short run equilibrium: Error correction mechanism

We have already defined the long run relationship between Export and GDP. However, in order to make it objective, we should also define the short run. The technique to correct short-run disequilibrium to its long run long run equilibrium is on the form of Error Correction Mechanism (ECM). The equation of ECM is as follows:

$$\Delta GDPCountryX = \beta_0 + \beta_1 \Delta ExportCountryY + \beta_2 U_{t-1} + e_t \quad (11)$$

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

$$u_{t-1} = GDPCountryX_{t-1}\beta_0 - \beta_1 ExportCountry_{t-1} \quad (12)$$

In this equation, $\Delta GDPCountryX_{t-1}$ is the difference in GDP for Japan, Korea and China, while $\Delta GDPJapan = \beta_0 + \beta_1 \Delta ExportChina + \beta_2 u_{t-1} + e_t$ applies for the effect of Japan's export to China on Japan's GDP.

3.2. CJK's Tendency towards RTA/FTA: Baldwin's Limited Domino Effect

The decision of a country to create RTA/ FTA will cause others to bring the same policy measures. To simulate this logic, the author constructs a simultaneous equation model on RTA/FTA in China, Japan and Korea. Although they have individual action, most of them are influencing each other. It is called limited domino effect because the scope of result is limited only amongst these three countries, ceteris paribus. Since it is limited, the effect will create the so-called "repeated games". The combination between "Baldwin's limited domino effect" and "repeated games" has brought this chapter to propose a new term which is called "the pinball effect".

This section employs Vector Auto Regression (VAR) as a part of simultaneous equation model. VAR model is one of the most successful, flexible, and easy to use models for the analysis of multivariate time series. VAR models were advocated by Christopher Sims, who criticized the claims and performance of earlier modeling in macroeconomic econometrics. Sims recommended VAR models, which had previously appeared in time series statistics and system identification, a statistical specialty in control theory. Sims advocated VAR models as providing a theory-free method to estimate economic relationships, thus being an alternative to the "incredible identification restrictions" in structural models.

$$CFTA_t = \alpha_1 + \sum \beta_{1j} CFTA_{t-j} + \sum \lambda_{1j} JFTA_{t-j} + \sum \gamma_{1j} KFTA_{t-j} + \varepsilon_1 \quad (13)$$

$$JFTA_t = \alpha_2 + \sum \beta_{2j} JFTA_{t-j} + \sum \lambda_{2j} KFTA_{t-j} + \sum \gamma_{2j} CFTA_{t-j} + \varepsilon_2 \quad (14)$$

$$KFTA_t = \alpha_3 + \sum \beta_{3j} KFTA_{t-j} + \sum \lambda_{3j} JFTA_{t-j} + \sum \gamma_{3j} CFTA_{t-j} + \varepsilon_3 \quad (15)$$

Where:
$CFTA_t$ = Chinese FTA at year t
$JFTA_t$ = Japanese FTA at year t
$KFTA_t$ = Korean FTA at year t
$CFTA_{t-j}$ = Chinese FTA at year t-j
$JFTA_{t-j}$ = Japanese FTA at year t-j
$KFTA_{t-j}$ = Korean FTA at year t-j
$\alpha, \beta, \lambda, \gamma$ = constant terms
ε = Error term

The equation above shows that all variables are endogenous variables within the simultaneous equation. The variables are influencing each other, as for example the growth of Chinese FTA in year "t" is influenced by the Chinese FTA, Japanese FTA and Korean FTA from previous period. Likewise, the growth of Japanese FTA at year t is influenced by Japanese FTA, Chinese FTA and Korean FTA from previous period. Furthermore, Korean FTA at year t is influenced by Korean FTA, Japanese FTA and Chinese FTA from the previous period.

3.3. The Spillover Effect from Japan-Korea-China Triangular Trade to ASEAN4

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. Another reason to use ASEAN4 countries is due to data limitation for the Cambodia-Lao-Myanmar-Vietnam (CLMV) countries and the incompatibility of Singapore and Brunei. This essay 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 model is described as follows:

$$\begin{aligned} Y_{it} = \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} + \\ \gamma_3 W_{3t} + ... + \gamma_N W_{Nt} + \delta_1 Z_{1t} + \\ \delta_2 Z_{2t} + \delta_3 Z_{3t} + ... + \delta_t Z_{iT} + \varepsilon \end{aligned} \quad (16)$$

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 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:

$$\begin{aligned} Y_t &= \beta_1 + \beta_2 C_t + \beta_3 I_t + \beta_4 G_t + \\ &\quad \beta_5 X_t + \beta_6 JGDP_t \\ &\quad + \beta_7 CGDP_t + \beta_8 KGDP_t \end{aligned} \quad (17)$$

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

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

$$\begin{aligned} X_t &= \beta_1 + \beta_2 EX_t + \beta_3 C_t \\ &\quad + \beta_4 JGDP_t + \beta_5 CGDP_t \\ &\quad + \beta_6 KGDP_t \end{aligned} \quad (20)$$

Equation 17 describes the effects of ASEAN4 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 (r_t) and the GDP growth (C_t). 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 ASEAN4.

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 1 summarize the order condition from the system:

OLS estimation does not yield unbiased or consistent estimates of the parameters in the spatially autoregressive model, because the error terms are correlated with the spatially weighted dependent variable. 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 does not give unbiased estimates, but does give consistent estimates. As the structural model is concern, 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 Ct-1, Yt-1, rt, Gt, EXt, JGDPt, CGDPt, KGDPt as the instrumental variables, therefore all equations from 17 up to 20 have to be transformed into reduced form equation as the followings:

$$\begin{aligned} Y_t &= \prod_1 + \prod_2 C_{t-1} + \prod_3 Y_{t-1} + \prod_4 r_t \\ &\quad + \prod_5 G_t + \prod_6 EX_t + \prod_7 JGDP_t \\ &\quad + \prod_8 CGDP_t + \prod_9 KGDP_t \quad (21) \end{aligned}$$

$$\begin{aligned} C_t &= \prod_1 0 + \prod_1 1C_{t-1} + \prod_1 2Y_{t-1} + \prod_1 3r_t \\ &\quad + \prod_1 4G_t + \prod_1 5EX_t + \prod_1 6JGDP_t \\ &\quad + \prod_1 7CGDP_t + \prod_1 8KGDP_t \quad (22) \end{aligned}$$

$$\begin{aligned} I_t &= \prod_1 9 + \prod_2 0C_{t-1} + \prod_2 1Y_{t-1} + \prod_2 2r_t \\ &\quad + \prod_2 3G_t + \prod_2 4EX_t + \prod_2 5JGDP_t \\ &\quad + \prod_2 6CGDP_t + \prod_2 7KGDP_t \quad (23) \end{aligned}$$

$$\begin{aligned} X_t &= \prod_2 8 + \prod_2 9C_{t-1} + \prod_3 0Y_{t-1} + \prod_3 1r_t \\ &\quad + \prod_3 2G_t + \prod_3 3EX_t + \prod_3 4JGDP_t \\ &\quad + \prod_3 5CGDP_t + \prod_3 6KGDP_t \quad (24) \end{aligned}$$

Note: $\prod is \frac{\beta}{1-\beta}$
From stage one we get $Y\wedge_t, C\wedge_t, I\wedge_t, X\wedge_t$ 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 which will bedescribed in the fourth section.

3.4. Factors Contributing to 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

Table 1: 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

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:

$$\begin{aligned} Open_{it} &= \alpha + \beta X_{it} + \gamma_1 W_{1t} + \gamma_2 W_{2t} \\ &\quad + \gamma_3 W_{3t} + ... + \gamma_N W_{Nt} \\ &\quad + \delta_1 Z_{i1} + \delta_2 Z_{i2} + \delta_3 Z_{i3} \\ &\quad + ... + \delta_t Z_{iT} + \varepsilon_{it} \end{aligned} \tag{25}$$

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 and = 0 for others

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

4. Results and Discussion

4.1. The Short and Long run Equilibrium

In this part, two scenarios are included. In the first scenario, the author used the period when FTAs/EPAs was not a major trend while in the second scenario the author used the period when it has emerged as snowball. According to UNESCAP Trade Agreement database, Most FTAs/EPAs are in force after the year of 2005. Therefore, the scenarios are differentiated by the time period. In the first scenario, the author used the data from 1985 to 2005. As for the second scenario, the data from 1990 to 2009 are employed.

4.1.1. First Scenario

The Long Run Equilibrium From Table 2 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. But, it is important to note that the long run equilibrium can have stability problems if the short run shock cannot be tackled.

The Short Run Equilibrium Equation 11 has shown that the long run relation between Export and GDP in Japan, China and Korea would be balanced by the previous error. Table 3 provides the short run output for CJK.
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.

Table 2: Cointegration Parameters

Independent Variables	Dependent 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

Table 3: Equilibrium Errors

Independent Variables	Dependent 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%)

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 result in scenario one, 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. The absence of an appropriate action will only lead to a shock for the long run equilibrium hence lowering the projected welfare growth. Therefore, in order to strengthen regional welfare and accelerate the phase of adjusting, economic integration must take place.

4.1.2. Second Scenario

Long Run Equilibrium Based from the cointegration result in scenario two, we can conclude that in the long run, export will still play a vital role for the economic growth. Table 4 summarizes the result.

Short Run Equilibrium

The majority of FTAs/EPAs that are in force since 2005 has given a considerable impact in the CJK countries constellation.

Table 4: Cointegration Parameters

Independent Variables	Dependent 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

In scenario one, we see Japan as a sick partner for the CJK triangular scheme. But here in scenario two, Japan has been successfully proven in revitalizing their condition. It can be seen from the change in coefficients of acceleration which are getting better compared with the one in scenario one. In particular, we can see the Japan is no longer facing a steady state level with Korea, or to put it in other words, Japanese products have recovered its market in Korea. Korea has also grown well in this scheme. The coefficients of acceleration have found betterment compared to the one in scenario one, hence giving a major boost in welfare. However, the improving condition of Japan and Korea has given a slight shock for China. The fact is clearly described from the decreasing rate for the coefficients of acceleration. But, the shock is not significant enough if we calculate the overall welfare impact from the FTAs/EPAs that are in force. Table 5 summarizes the ECM result in scenario two.

It is true that the CJK have not found themselves in the concrete institutionalization meeting to put pen on the RTA scheme in North East Asia. But at least from this scenario we can see how the FTAs/EPAs have played a major key role for welfare. Based from this finding, we can expect a concrete the RTA scheme happens in this region.

4.2. The Pinball Effect

From the VAR result simulation in Table 6, we can see that Chinese FTA is influenced by her own FTA in t-1 and Japanese FTA in t-2 while Korean action to conduct FTA does not give significant influence to Chinese FTA strategy. Japanese FTA, on the other hand, is clearly influenced by her FTA in t-1, Chinese FTA in t-1 and Korean FTA in t-2. Implicitly speaking, Japanese put more attention in Chinese FTA rather than Korean FTA. It is stated from the difference in time lag. Korean strategy in conducting FTA is rather unique compared with Japanese and Chinese FTA. Korean FTA is surely neglecting her previous FTA policy and put more focus on Japanese and Chinese action. Chinese FTA in t-1 and t-2 give an abundant dominance for Korean FTA while Japanese FTA gives different influence in t-1 and t-2. Japanese FTA in t-2 boost the tendency of the Koreans to have their FTA with others while Japanese FTA in t-1 stalls the Korean FTA. In this simulation, it is fair to say that the action of China in making FTA/RTAs is most likely followed by Japan and Korea while the action of Japan or Korea gives a less pronounce effect. In other words, Japan and Korea are the basic followers of China with regards to the FTA strategy.

The inter-dependence strategy will be repeating intensely and eventually create the so-called the pinball effect. The pinball effect is the fundamental bloc that helps to integrate these three countries into one RTA.

4.3. Spill-Over Effect

From Table 7 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

Table 5: Equilibrium Errors

Independent Variables	Dependent Variables		
	GDP (Japan)	GDP (China)	GDP (Korea)
Equilibrium error for Export to Japan	na	-0.45 **	-0.88 ***
Equilibrium error for Export to China	-0.54 *	na	-1.07 ***
Equilibrium error for Export to Korea	-0.57 *	-0.29 *	na

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

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.

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) that point out China's emergence for creating short and medium term direct and indirect competition between ASEAN and China. They argue 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.

4.4. Factors Contributing to EAR

The results 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.

5. 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, in the absent of FTAs/ EPAs, 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. But, rough prove is found from the scenario in which we include the periods when FTAs and EPAs emerging in the mid of 2000's. The result is quite good since it accelerates Japan's phase of adjustment. The hard task is about making these countries move together in the same phase, which is why regionalism has to take place.

Baldwin's limited domino effect shows us that the bilateral FTAs that are conducted by China, Japan and Korea towards others will eventually converge the region into one RTA. The spill-over effect from the CJK to ASEAN4 countries is filling the hope for potential regionalism. The next task is to shape the future of EAR, but then will the future exist? Using the pinball effect, 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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Table 6: VAR Result

	CHINA-FTA	JAPAN-FTA	KOREA-FTA
CHINA-FTA(-1)	0.628205	0.948718	0.410256
	-0.26004	-0.2701	-0.09456
	-2.41582	-3.51246	-4.33861
CHINA-FTA(-2)	-0.517094	-0.726496	0.811966
	-0.42724	-0.44377	-0.15536
	(-1.21033)	(-1.63711)	-5.22641
JAPAN-FTA(-1)	0.088034	0.391453	-0.331624
	-0.19291	-0.20037	-0.07015
	-0.45636	-1.95364	(-4.72749)
JAPAN-FTA(-2)	0.873504	0.223932	0.408547
	-0.25506	-0.26493	-0.09275
	-3.42467	-0.84524	-4.40483
KOREA-FTA(-1)	0.191453	-0.663248	-0.294017
	-0.51012	-0.52986	-0.1855
	-0.37531	(-1.25173)	(-1.58500)
KOREA-FTA(-2)	-0.14188	1.670085	-0.960684
	-0.34976	-0.3633	-0.12719
	(-0.40565)	-4.59701	(-7.55333)
C	0.084615	0.046154	0.030769
	-0.09355	-0.09717	-0.03402
	-0.90453	-0.475	-0.90453

Sample(adjusted): 1992 2009

t Standard errors & t-statistics in parentheses

Table 7: Two Stage Least Squares Regression Output

Independent Variables	Dependent Variables			
	Y	C	I	X
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	-3.76
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 8: Factors Affecting Opennes

Dependent Variable: OPENNES Independent Variable	Coefficient	t-Statistic
LOG(RAILWAYS)	0.11586	2.059379**
TAX	-0.029831	-3.530943***
DEMOCRACY	-0.004282	-2.051852**
GOVERNANCE	0.257508	3.860438***
INDUSTRY	0.04993	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%)