

Regional Economic Integration and Trade in ASEAN: Evidence from Two Episodes of Financial Crises

Normaz Wana Ismail^{a*}

^aInstitute of Agricultural and Food Policy Studies, Universiti Putra Malaysia, Putra Infoport, UPM Serdang, Selangor, Malaysia

Abstract

This study empirically investigates the effect of the two episodes of financial crises on ASEAN trade using the gravity model. It further examines whether the formation of the ASEAN Free Trade Area (AFTA) and ASEAN Economic Community (AEC) resulted in an increase in intra ASEAN trade for the period 1986 to 2010. This study makes a contribution to trade literature to include financial sector in the model which has been ignored from previous studies. From basic gravity variables, the results found that market size, population, relative endowment, financial sectors, distance and common border are the main determinants of bilateral trade in ASEAN. The result reveals that the AFTA and AEC did trigger intra ASEAN trade. Evidence from Asian financial crisis shows that intra ASEAN still increases during that period. However, the inclusion of financial sectors, the result is insignificant. This study reveals that the global crisis 2007/08 did distort the intra ASEAN trade.

Keywords: AFTA, AEC, Asian financial Crisis, Global financial crisis

* Corresponding author's information : Normaz Wana Ismail, Institute of Agricultural and Food Policy Studies , Putra Infoport, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor Darul Ehsan, Malaysia, E-mail: nwi@upm.edu.my; Tel: +603-89471096, Fax: 603-89486188

1. Introduction

A decade ago, the role of Association of Southeast Asian (ASEAN) Free Trade Agreement (AFTA) has been debated among economists as well as politicians. The AFTA's critics mostly question the credibility of the ASEAN to compete with the new giant economy in East Asia, China, which has already captured a larger market and attracted the bulk of new capital flows. The expansion of ASEAN from six to ten members has also been hotly debated and questions have been raised as regards to the relevance of the function of the association as a whole. At the same time, Singapore, Thailand and Malaysia have sought bilateral trade arrangements with other countries outside the region, which have exposed the region's weakness in pursuing a deeper stage of economic integration.

AFTA was created in 1992 and came to effect on the following years. When ASEAN was established, trade among members was insignificant and relatively low. According to Elliot and Ikemoto (2004), the effects of AFTA was not significantly affected immediately after 1992 but gradually increased. The share of ASEAN's trade between 1967 to early 1970s from ASEAN's total trade was between 12 to 15 percent only. The key element in AFTA is the Common Effective Preferential Tariff (CEPT) Scheme covers manufactured products as well as agricultural products. Under the CEPT scheme, tariffs on a wide range of products traded within the region should be totally eliminated by 2010, for ASEAN5. According to ASEAN Secretariat, the total ASEAN trade has expanded more than double from US\$82.46 billion in 1993 to US\$174.25 billion in 2003. In 2009, total ASEAN trade already reached at US\$1.5 trillion.

The 1997 financial crisis which hurt most of the ASEAN countries was the biggest challenge to ASEAN members which the Association just reached 30 years old. It has not only brought countries to poverty but also impaired the economic systems which have been built for more than three decades. Some experts predicted that it would take a decade for ASEAN economies to recover and would result in broken ties of ASEAN10. On the other hand, the financial crisis appears to have accelerated progress towards closer integration. The ASEAN economy has bounced back within two years of crisis which shows fundamental strength and resilience. Empirical evidences reveal that the Asian crisis has worked as a trigger for a further acceleration of the process of economic integration rather than as a hindrance (see Elliot and Ikemoto, 2004; and Ismail et. al, 2007)

Taking a lesson from the past economic turmoil, ASEAN took one step ahead to prevent recurrence of the crisis by setting up a framework for closer economic policies called ASEAN Surveillance Process (ASP). Recent development in ASEAN has seen the association seriously moving from the free trade agreement which previously only focus in the removal of tariff to the new phase of ASEAN Community (AC) for achieving the goals to transform ASEAN into a highly competitive region with an equitable economic development. In 2003, the ASEAN Secretariat announced the establishment of ASEAN Economic Community (AEC) to be realized by 2015 with aim to be a single market and production base, highly competitive economic region with equitable economic development and fully integration into global economy. In 2003, the share of intra ASEAN trade amounted US\$ 206 billion. The crisis forced members to shift the focus to export within East Asian production network. East Asian Investors located the plant in ASEAN countries to produce sophisticated technology-intensive intermediate goods and capital goods, then export to China and other ASEAN countries which advantage with low skilled workers to produce finish products. Finally the products export to all over the world.

However, the global crisis in 2007/2008 that hit most of developed countries especially to the most important trade partners, the US and Western Europe distort trade flows in the region which encounter massive reduction of total ASEAN trade from 14.7% in 2007 to -19% in 2009; meanwhile, Intra ASEAN trade reduce from 13.9% to -20% for the same period. Before the crisis, the region has heavily dependent on developed countries such as the US, Japan and West Europe. The region applied the export led growth strategy at the beginning of 1990s which most of the

demand was transmitted to developed countries. The crisis seems to distort the total ASEAN trade as ASEAN members' export are too much depend on the US and her allies. During the crisis, the US reduces the imports from East Asian countries as a whole (Park, 2011). At the same time, the US dollar and the Euro getting weaker and depreciating which leave the ASEAN currency appreciate. This will give disadvantage to the ASEAN members since ASEAN trade are expensive compared to others.

Even though some Asian countries rebound from the crisis in the second quarter of 2009, and thus quickly recovery from the crisis, the ASEAN performance still slow compared to North East Asian countries. Trade relation with China has seen the main contribution to recovery period in ASEAN countries as China absorption of export and become a hub for intra-regional Asian trade (Park, 2011).

Regarding the above issues, therefore, a question has been raised in this study whether is there any different impact from the two episodes of crisis namely Asian financial crisis 1997/98 and global financial crisis 2007/08 on ASEAN trade. Is there any significant impact between the implementation of AFTA and Asian financial crisis; and the announcement of AEC with global financial crisis? Thus the current paper aims to examine the impact of two episodes of financial crises on intra ASEAN trade. This study further investigate whether the regional policy by implementation of AFTA and AEC trigger the intra ASEAN trade instead of hindrance. This study makes a contribution to introduce financial indicators as major determinant in intra ASEAN trade.

2. Literature review

In general, economists analyze the effect of Regional Trade Agreements (RTAs) or Preferential Trade Agreements (PTAs) in terms of the volume of trade. The literature on trading blocs typically concentrates on Vinerian idea of trade creation and trade diversion (see Aitken, 1973; Bergstrand, 1985; Hamilton and Winters, 1992; Frankel et al, 1995; Frankel and Wei, 1997; Endoh, 1999; Sharma and Chua; 2000; Soloaga and Winters, 2001; Thorton and Goglio, 2002; Clerete et al., 2003 and Elliot and Ikemoto, 2004).

A number of studies have been carried out to investigate the effect on bilateral trade of PTA such as European Union, North America Free Trade Area (NAFTA), the Andean Pact, Latin America Free Trade Area (LAFTA). For instance, Thorton and Goglio (2002) investigate the degree of regional bias in intra-Southeast Asian trade including Malaysia, Indonesia, Philippines, Thailand and Singapore. They found that the membership of ASEAN does promote intra-regional trade. Meanwhile, Soloaga and Winters (2001) have modified the gravity equation to test for significant changes in trade patterns by separating the effect of PTAs (including ASEAN) on intra bloc trade, members' total imports and total exports. Their results are similar to Frankel (1997) which showed that the intra bloc trade coefficient was negative for ASEAN whereas the coefficients for overall bloc imports were statistically significant and positive. However, a study by Clarete et al.(2003) on the effect of various preferential trade agreements (PTA) on trade flows with Asian countries finds that there was no effect on intra-bloc trade in ASEAN; in fact they found evidence of a reduction in imports and exports in that region including all its ten members.

Frankel and Wei (1997) study trade and FDI among ASEAN economies by using gravity equation for 1980, 1990, 1992 and 1994. They concluded that trade among ASEAN countries is higher than one would expect which are trade creation instead of trade diversion. With data limitation, they predicted that the new ASEAN members particularly Vietnam and Indochinese countries will have trade expansion amounting to seven-fold for the next decade. Another study done by Sharma and Chua (2000) using a gravity model, examine each of five ASEAN countries namely Malaysia, Indonesia, Philippines, Thailand and Singapore based on data 1980 to 1995 to find the impact of the APEC on the integration of ASEAN. They found that the dummy variables for intra ASEAN trade are negative for

all ASEAN5 except Philippines. They conclude that the ASEAN (excluding Philippines) PTA did not increase intra-ASEAN trade.

Influential study conduct by Elliot and Ikemoto (2004), examine intra-and-extra bias in bilateral trade flows before and after the signing of AFTA as well as the year of prior to and the following the Asian crisis which cover the period from 1983 to 1999. They found that trade flows were not significantly affected immediately after 1992 but gradually increased. Their result reveals that the Asian crisis has worked as a trigger for a further acceleration of the process of economic integration rather than as a hindrance.

Similarly, Sudsawasd and Mongsawad (2005), shows by using gravity model ASEAN-5 will tend to realize the potential gains from stronger regional economic cooperation if they fully liberalized trade among themselves by having more trade among its member countries and between ASEAN-5 member countries and the selected FTA partners and perhaps that is the reason for potentially higher GDP growth. There are also welfare gains among ASEAN-5 member countries trading with FTA partners for ASEAN. Besides using Gravity model Tho (2002), using trade matrix analysis of manufactured products for ASEAN5 and three major non-ASEAN partners namely Japan, China and South Korea, found that trade and investment effect of the AFTA was not as strong as what the theory of free trade area would predict. Park (2008) use CGE model to find the impact of proposed East Asian RTA strategies. He apply multi-sector and multi-country CGE model to evaluate the impact on the East Asian regional economic integration on welfare, GDP, export, and income. His finding reveals that the AFTA provide positive effect to the ASEAN members but negative effect with Northeast Asian neighbors. However, the gains from trade will be raised if ASEAN members pursue ASEAN Hub which applies the hub-and-spoke type of overlapping RTA strategy.

Based on previous study the role of AFTA has mixed results. This study tries to fill the gap by using recent data to estimates seventeen years after the implementation of AFTA and seven years after the announcement of AEC.

3. Methodology

This study uses gravity model that originally explained the volume of trade flows in terms of the ratio of the product of the gross domestic product (GDP) of countries i and j to the distance between them. The estimation model is presented in equation (1). The dependent variable used is exports from country i (imports to country j). For linearizing the model, variables are in logarithmic form in year t .

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \ln POP_{it} + a_4 \ln POP_{jt} + a_5 \ln ENDOW_{ijt} + a_6 \ln DIST_{ij} + a_7 BOR_{ijt} + a_8 \ln FIN1_{it} + a_{10} AFTA + a_{11} AEC + e_{ijt} \dots \dots (1a)$$

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \ln POP_{it} + a_4 \ln POP_{jt} + a_5 \ln ENDOW_{ijt} + a_6 \ln DIST_{ij} + a_7 BOR_{ijt} + a_8 \ln FIN2_{it} + a_{10} AFTA + a_{11} AEC + e_{ijt} \dots \dots (1b)$$

Equation (1a) and (1b) is a basic gravity model which contains basic determinants of bilateral trade such as market size ($\ln Y_i$ and $\ln Y_j$), population ($\ln POP_i$ and $\ln POP_j$), relative endowment ($\ln ENDOW$), distance ($\ln DIST$), and binary variables which are set equal to one if two countries share common border (BOR) and zero otherwise. $\ln FIN1$ and $\ln FIN2$ are financial indicators namely domestic credit provided by banking sector and domestic credit to private sector, respectively. These two indicators are proxy for financial sector and estimate separately to avoid multicollinearity problem.

The gravity model predicts that bilateral trade should increase with market size, log of absolute difference in GDP per capita between exporters and importers as a proxy for relative endowment, and common border but decrease with distance. A dummy variable (binary variable) for common border is used to control for countries that share a border which allows them to have border trade. Distance is a proxy for transportation cost which shows the shorter the distance, the lower the transportation cost and the higher the volume of trade between in two countries. However, the expected result of the size of population and FTA are ambiguous. Frankel (1997) and Endoh (1999), considers that countries with a large population would be better able to exploit their own economies of scale in their larger domestic market than smaller countries. On the other hand, Brada and Mendez (1985) believe that a larger population in the importing country allows imports to compete better with domestic goods and compensates exporters for the cost of foreign sales activities.

AFTA is a dummy which equal to one if exporters and importers are ASEAN members starting from 1993 to 2010, otherwise zero. The dummy represent the period when AFTA was implemented until the full effects of AFTA. AEC is a dummy which equal to one starting the announcement of AEC in 2003 until current period. However, it should be noted here that AEC will not be fully implemented until 2015. Following Ghosh and Yamarik (2004), a positive value of the estimated coefficient can be interpreted as trade creation, which indicates that the two countries trade more than predicted by other variables. Therefore, the size and statistical significance of the coefficient on the AFTA and AEC suggests the existence of intra-regional trade between the five ASEAN economies. A negative and significance, on the other hand implies that they trade less with each other than what would be expected.

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \text{POP}_{it} + a_4 \ln \text{POP}_{jt} + a_5 \ln \text{ENDOW}_{ijt} + a_6 \ln \text{DIST}_{ij} + a_7 \text{BOR}_{ijt} + a_8 \ln \text{FIN1}_{it} + a_{10} \text{AFTA} + a_{11} \text{AEC} + a_{12} \text{CRISIS1} + a_{13} \text{CRISIS2} + e_{ijt} \dots \dots \dots (2a)$$

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \text{POP}_{it} + a_4 \ln \text{POP}_{jt} + a_5 \ln \text{ENDOW}_{ijt} + a_6 \ln \text{DIST}_{ij} + a_7 \text{BOR}_{ijt} + a_8 \ln \text{FIN2}_{it} + a_{10} \text{AFTA} + a_{11} \text{AEC} + a_{12} \text{CRISIS1} + a_{13} \text{CRISIS2} + e_{ijt} \dots \dots \dots (2b)$$

Equation (2) includes dummy for Asian financial crisis 1997-98 (CRISIS1) and dummy for global financial crisis 2007-08 (CRISIS2).

For robustness purposes, equation (3) includes the interaction term between AFTA and AEC with the two financial crises. It means that if the two countries are ASEAN members during the period of AFTA or AEC with the period of Asian Financial crisis (CRISIS1) and Global financial crisis (CRISIS2), respectively.

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \text{POP}_{it} + a_4 \ln \text{POP}_{jt} + a_5 \ln \text{ENDOW}_{ijt} + a_6 \ln \text{DIST}_{ij} + a_7 \text{BOR}_{ijt} + a_8 \ln \text{FIN1}_{it} + a_{14} \text{AFTA} * \text{CRISIS1} + a_{15} \text{AEC} * \text{CRISIS2} + e_{ijt} \dots \dots \dots (3a)$$

$$\ln X_{ijt} = a + a_1 \ln Y_{it} + a_2 \ln Y_{jt} + a_3 \text{POP}_{it} + a_4 \ln \text{POP}_{jt} + a_5 \ln \text{ENDOW}_{ijt} + a_6 \ln \text{DIST}_{ij} + a_7 \text{BOR}_{ijt} + a_8 \ln \text{FIN2}_{it} + a_{14} \text{AFTA} * \text{CRISIS1} + a_{15} \text{AEC} * \text{CRISIS2} + e_{ijt} \dots \dots \dots (3b)$$

4. Data description

The estimation of panel data for 25 years (1986 to 2010) includes five exporter countries from ASEAN namely Malaysia, Indonesia, Singapore, The Philippines and Thailand. There are thirty nine selected import countries[†]

[†] The list of the importers countries refer to the appendix.

mainly from Asia and some developed and developing countries. Therefore, this study consists of an unbalanced panel data of 190 trading pairs with 4534 observations. Bilateral export data are in dollar terms (current prices) taken from COMTRADE database, United Nation. GDP, Per Capita GDP, Population, domestic credit provided by banking sector percentage to GDP and domestic credit to private sector percentage to GDP, were taken from World Development indicators, World Bank. Distance and Common border measures are taken from Centre D'Etudes Prospectives Et D'Informations Internationales (CEPII) meanwhile information about free trade agreement is built on the base of ASEAN secretariat information.

5. Empirical Result and Discussion

Table 1 presents the result of the impact of the formation of AFTA and implementation of AEC on intra ASEAN trade. The estimations are based on Random Effect Model (REM). Even though some studies proposed to use Fixed Effects Model (FEM), however, to avoid some time invariant variables to be dropped especially dummies for AFTA, AEC and crises, this study prefer to use REM. The coefficients for the market size for both exporters ($\ln Y_i$) and importers ($\ln Y_j$) are positive and statistically significant. This suggests that the bigger market size implies higher trade flows of the countries. However, coefficients of log population for exporters are negative and significant, but insignificant for the importers. These results suggest that a country in ASEAN with a big population such as Indonesia might produce goods for domestic consumers to serve the domestic population and trade less with other countries, whereas a country with a small population such as Singapore trades more with others. The absolute difference between exporters and importers per capita GDP as a proxy for relative endowment is positive and significant which implies that the more different in relative endowment, the more the two countries trade with each other, that support the Heckscher-Ohlin hypothesis.

As expected, distance exerts a strong negative impact on trade flow. This result seems consistent with the theory which stated that the shorter the distance, the less cost of transportation and the more trade would occur with the partners. The coefficient for dummy of common border is positive and significant, indicates that if the two countries between ASEAN members and trade partners are neighbors and separate by border, the trade would be higher. Both financial indicators in column 2 and 3 are positive and significant implied that financial sectors are very important determinants for ASEAN trade. Increase in domestic credit for both banking and private sector in ASEAN lead to increase ASEAN trade. The result implied that the financial sectors are important as a mean to trade facilitation in ASEAN region. Thus improve in financial infrastructure can help trade enhancement.

The AFTA dummy is positive and significant (column 4) which confirm the free trade agreement did enhance trade among members. The results are consistent with model that includes both financial indicators. The AEC coefficient in column 5 is positive but insignificant. However, when we added both financial indicators, the AEC dummy is positive and significant. This result reveals that the important of financial sector especially in the AEC blueprint, deeper economic integration also focus to improve financial sector to help domestic firms to compete with international firms.

Table 1: The Impact of AFTA and AEC on Intra ASEAN Trade

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
$\ln Y_i$	1.73 ^a (38.69)	1.618 ^a (35.45)	1.775 ^a (38.46)	1.814 ^a (39.34)	1.702 (37.91)	1.589 ^a (34.76)	1.725 ^a (38.49)	1.608 ^a (35.17)	1.697 ^a (37.77)	1.582 ^a (34.58)
$\ln Y_j$.652 ^a (11.63)	.773 ^a (13.87)	.729 ^a (12.75)	.736 ^a (12.40)	.631 ^a (11.25)	.748 ^a (13.40)	.605 ^a (10.37)	.724 ^a (12.52)	.591 ^a (10.15)	.707 ^a (12.27)
$\ln \text{POP}_i$	-.548 ^a (-38.61)	-.443 ^a (-26.92)	-.619 ^a (-44.16)	-.625 ^a (-44.43)	-.545 ^a (-38.53)	-.442 ^a (-26.97)	-.546 ^a (-38.47)	-.440 ^a (-26.66)	-.543 ^a (-38.41)	-.439 ^a (-26.74)
$\ln \text{POP}_j$	-.034	-.034	-.033	-.019	-.045	-.045	-.035	-.034	-.045	-.045

	(-0.62)	(-0.62)	(-0.58)	(-0.34)	(-0.81)	(-0.82)	(-0.63)	(-0.62)	(-0.81)	(-0.82)
lnENDO	.101 ^a	.100 ^a	.090 ^a	.093 ^a	.098 ^a	.097 ^a	.101 ^a	.100 ^a	.098 ^a	.097 ^a
W _{ij}	(7.94)	(7.88)	(6.90)	(7.09)	(7.75)	(7.70)	(7.92)	(7.87)	(7.75)	(7.69)
IDIST _{ij}	-.472 ^a	-.481 ^a	-.649 ^a	-.689 ^a	-.444 ^a	-.451 ^a	-.461 ^a	-.469 ^a	-.436 ^a	-.443 ^a
	(-7.72)	(-7.90)	(-10.45)	(-11.07)	(-7.27)	(-7.42)	(-7.54)	(-7.71)	(-7.14)	(-7.29)
BOR _{ij}	.945 ^a	.926 ^a	.949 ^a	.979 ^a	.925 ^a	.906 ^a	.954 ^a	.935 ^a	.933 ^a	.915 ^a
	(9.05)	(8.88)	(8.80)	(9.03)	(8.89)	(8.73)	(9.14)	(8.98)	(8.97)	(8.81)
lnFinance 1	.554 ^a				.539 ^a		.561 ^a		.546 ^a	
	(18.83)				(18.32)		(19.03)		(18.48)	
lnFinance 2		.547 ^a				.533 ^a		.555 ^a		.541 ^a
		(19.44)				(19.00)		(19.67)		(19.18)
AFTA			.592 ^a		.467 ^a	.479 ^a			.451 ^a	.462 ^a
			(7.31)		(5.96)	(6.13)			(5.74)	(5.90)
AEC				.115			.233 ^a	.248 ^a	.198 ^b	.212 ^a
				(1.44)			(3.01)	(3.22)	(2.56)	(2.75)
Constant	-30.32 ^a	-32.16 ^a	-28.25 ^a	-29.14 ^a	-29.09 ^a	-30.86 ^a	-29.07 ^a	-30.86 ^a	-28.07 ^a	-29.80 ^a
	(-23.32)	(-24.67)	(-20.94)	(-20.74)	(-22.16)	(-23.43)	(-21.31)	(-22.60)	(-20.47)	(-21.73)
No. Obs.	4479	4479	4479	4479	4479	4479	4479	4479	4479	4479
F-	6172.60 ^a	6223.45 ^a	5511.50 ^a	5398.40 ^a	6255.47 ^a	6311.50 ^a	6192.51 ^a	6246.36 ^a	6269.57 ^a	6328.46 ^a
statistics/ Wald test										
R ²	0.6394	0.6407	0.6639	0.6579	0.6462	0.6540	0.6378	0.6454	0.6407	0.6547

Notes: Numbers in parentheses are t-statistics. ^{a, b, c} indicate significance at the 1%, 5% and 10% level.

Table 2 reports the results of the impact of the two episodes of financial crisis on ASEAN trade. All coefficients of standard gravity variables are of the correctly sign and statistically significant. In Column (1) the dummy for financial crisis 1997-1998 is found to have a positive and significant coefficient. AFTA dummy still positive and significant which implied that the five ASEAN countries did trade more during the crisis as found in Elliot and Ikemoto (2004). However, when financial indicators are included in the models (column 2 and 3) the result for financial crisis is insignificant. This result indicates that during the Asian financial crisis, the financial sectors have been hurt so much which give serious impact to most of ASEAN members. Thus, future research should not ignore the role of financial sector which obviously important in explaining trade model. For robustness, the interaction between ASEAN members and financial crisis are added in the model (column 4 and 5) and the result still insignificant.

Column 6 to 11 reports the result of the impact of global financial crisis on ASEAN trade. The impact of AEC on ASEAN trade during the global crisis is positive and significant which implied that global crisis did not distort trade in ASEAN in general even though the coefficient for global crisis is negatives and significant. However, the coefficients for interaction term between AEC and global crisis (column 9 to 11) is negative implied that the global crisis did harm trade among ASEAN members. The weaknesses of US dollar and the Euro may be the reason trade reduction among ASEAN members due to appreciation of home currency.

Table 2: The Impact of Two Episodes of Financial Crises

	Asian Financial Crisis					Global Financial Crisis					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
lnY _i	1.775 ^a (38.42)	1.703 ^a (37.87)	1.588 ^a (34.64)	1.733 ^a (38.65)	1.618 ^a (35.40)	1.867 ^a (39.94)	1.769 ^a (38.85)	1.65 ^a (35.49)	1.822 ^a (39.54)	1.736 ^a (38.69)	1.621 ^a (35.43)
lnY _j	.735 ^a (12.80)	.628 ^a (11.14)	.745 ^a (13.27)	.653 ^a (11.59)	.774 ^a (13.81)	.786 ^a (13.09)	.646 ^a (10.92)	.763 ^a (13.0)	.775 ^a (13.41)	.662 ^a (11.67)	.784 ^a (13.90)
LnPOP _i	-.619 ^a (-44.18)	-.545 ^a (-38.48)	-.440 ^a (-26.62)	-.548 ^a (-38.62)	-.444 ^a (-26.90)	-.633 ^a (-44.98)	-.553 ^a (-38.91)	-.449 ^a (-27.11)	-.627 ^a (-44.53)	-.548 ^a (-38.65)	-.445 ^a (-26.97)
LnPOP _j	-.035 (-0.62)	-.045 (-0.81)	-.044 (-0.80)	-.0351 (-0.63)	-.034 (-0.62)	-.029 (-0.52)	-.043 (-0.78)	-.042 (-0.76)	-.020 (-0.35)	-.035 (-0.63)	-.034 (-0.62)
lnENDOW _{ij}	.091 ^a	.098 ^a	.097 ^a	.101 ^a	.100 ^a	.095 ^a	.101 ^a	.100	.094 ^a	.101 ^a	.100 ^a

IDIST _{ij}	(6.96)	(7.75)	(7.69)	(7.94)	(7.89)	(7.20)	(8.01)	(.100)	(7.11)	(7.94)	(7.89)
	-650^a	-443^a	-447^a	-470^a	-479^a	-690^a	-466^a	-474^a	-699^a	-475^a	-484^a
BOR _{ij}	(-10.47)	(-7.24)	(-7.33)	(-7.68)	(-7.87)	(-11.13)	(-7.63)	(-7.79)	(-11.23)	(-7.76)	(-7.94)
	.952^a	.926^a	.906^a	.946^a	.927^a	.974^a	.951^a	.934^a	.971^a	.943^a	.925^a
lnFinance1	(8.83)	(8.89)	(8.73)	(9.06)	(8.89)	(9.02)	(9.13)	(8.99)	(8.96)	(9.03)	(8.87)
		.539^a		.553^a			.550^a			.552^a	
lnFinance2		(18.02)		(18.75)			(18.66)			(18.72)	
			.540^a		.546^a			.543^a			.544^a
AFTA	.569^a	.468^a	.485^a								
	(7.01)	(5.94)	(6.18)								
CRISIS1	.175^a	-0.001	-0.054					.255^a			
	(3.23)	(-0.03)	(-1.02)					(-5.17)			
AEC						.146^c		.268^a			
						(1.84)		(3.48)			
CRISIS2						-.369^a	-.290^a	-.274^a			
						(-6.34)	(3.30)	(-4.90)			
AFTA*CRISIS1				.081	.034						
				(0.66)	(0.28)						
AEC*CRISIS2									-.341^a	-.206^c	-.210^c
									(-2.63)	(-1.65)	(-1.69)
Constant	-28.36^a	-29.07^a	-30.86^a	-30.33^a	-32.17^a	-31.44^a	-30.60^a	-32.57^a	-30.22^a	-30.59^a	-32.46^a
	(-20.97)	(-22.07)	(-23.35)	(-23.27)	(-24.61)	(-21.66)	(-23.26)	(-23.05)	(-22.33)	(-23.26)	(-24.62)
No. Obs.	4479	4479	4479	4479	4479	4479	4479	4479	4479	4479	4479
F-statistics/ Wald test	5532.16 ^a	6253.46 ^a	6311.55 ^a	6171.79 ^a	6221.59 ^a	5484.06 ^a	6254.09 ^a	6301.25 ^a	5408.65 ^a	6177.12 ^a	6228.05 ^a
R ²	0.6646	0.6458	0.6535	0.6394	0.6406	0.6599	0.6431	0.6464	0.6566	0.6398	0.6399

Notes: Numbers in parentheses are t-statistics. ^a, ^b, ^c indicate significance at the 1%, 5% and 10% level.

Conclusion

This study focuses on the trade among ASEAN members using gravity model for the period of 1986 to 2010. The present study also investigates the effect of implementation of ASEAN free trade agreement (AFTA) and the formation of ASEAN Economic Community (AEC) on ASEAN trade. Generally, the estimated coefficients of most basic determinants are correctly signed and statistically significant, indicating that market size, population, relative endowment, border and distance between two countries could influence bilateral trade flows. This study makes a contribution to introduce financial indicators as important infrastructure to help trade facilitation in ASEAN, and thus cannot be ignored in the future research.

The AFTA and AEC dummy are used to capture the effect of intra-ASEAN trade. The results show that after the implementation of AFTA, ASEAN members trade each other more than others since some of ASEAN members already removed tariff and non-tariff barriers. The CEPT scheme is an important tool to improve not only domestic reformation but also to enhance the international trade liberalization. In addition, with commitment of ASEAN members to make the realization of AEC by 2015, the result also support that the policy of ASEAN members to pursue in deeper economic integration is worth doing. The AEC is said to have greater impact compared to AFTA which is not only on trade but also on foreign investment and liberalization of financial sector. Thus, this study confirms many empirical evidences at which trade creation can be created either among members or non-members via regional economic integration.

This study also provides two evidences of financial crises namely Asian financial crisis 1997/1998 and global financial crisis 2007/2008. The result reveals that during the Asian financial crisis, the devaluation of currency among members make intra ASEAN trade is cheaper and thus trade increases. However, the crisis still hurt most

ASEAN members especially in the financial sectors. In 1998, The ASEAN Surveillance Process was established aim to monitoring and accelerating financial sector in the region.

The second episodes of the financial crisis hit most of giant economy including the US and Western Europe. The performance of ASEAN trade showing positive effects after ASEAN members launched the AEC in 2003. However, the global crisis in 2007 and 2008 give negative impact on intra ASEAN trade. The depreciation of US currency leads appreciation of ASEAN member's currency and thus discourages trade among members.

Overall, this study conclude that the two episodes of financial crises give different impact on intra ASEAN trade as the cause of financial crises are also different. The commitment of ASEAN members towards the realization of AEC will make the region getting stronger to face any kind of challenges in the future.

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