Title Thesis: The feasibility of a common currency area in East Asia

ERASMUS UNIVERSITY ROTTERDAM

Faculty of Economics of Business

Department of Economics

Supervisor: Prof. Dr. J.M.A. Viaene

Name: Merve Kir

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Abstract

The aim of this thesis is to make an overview of the shortcomings of the ASEAN countries, China, Japan and South Korea for forming a monetary union. On the economic front, the degree of labor mobility, the interregional trade pattern, the trade composition, the degree of symmetry in economic development and external disturbances will be evaluated. Moreover, the monetary and fiscal performances of those countries will be evaluated on the basis of the Convergence criteria. Besides this, the stage of political and economic integration and the benefits of establishing a supranational institutional will be discussed.

Table of contents

Figures and Tables

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1. Introduction

There is more tendency for monetary and exchange rate cooperation among the East Asian countries, after the financial currency crisis in 1997. Many economists are claiming that the Asian crisis was caused by the single currency peg exchange rate system, which was implemented in Asia. For example Kawasaki and Ogawa (2001) argued in their paper that the heavy reliance on the single currency peg exchange rate has caused the Asian crisis. Furthermore Bayoumi, eral.(2000) claimed in their paper that the Asian crisis has demonstrated the dangers of attempting to peg exchange rates in the existence of open international capital markets.

Bayoumi and Eichengreen (1999) claimed that the Asian crisis was not the only factor which had motivate the East Asian autorties to adopt a common currency. The establishment of the Euro and the openness of the East Asian countries are other factors, which had stimulated the Asian authorities to accelerate the adoption of a common currency

In 1999, the authorities of the ASEAN[1], China, Japan and South Korea agreed to design plans to accelerate the introducing for a common market. This was the first step towards a monetary union. The second step was the ‘’Chiang Mai Initiative[2]’’, which includes plans for greater financial and monetary cooperation.

Many researchers have examined the feasibility of a common currency area in East Asia on the basis of the Optimum Currency Criteria, Bayoumi and Eichengreen (1999) evaluated the achievability of a monetary union in East Asia, they argued that the time was not ripe, which relies more on political shortcomings than on economic shortcomings. Wyplosz (2001) advised to form submonetary union, remains deeper cooperation within the submonetary union. Moreover, Yuen (2000) suggested to separate the East Asian region in smaller currency areas on the basis of their symmetry in underlying shocks. Kwack and Ahn (2003) defined the formation of a quasi-monetary bloc on the basis of their political characteristics and historical experience as an available option.

[1] The ASEAN refers to the association of South Asian Nations, which was formed in 1967. It is a geo-political and economic organization of 10 countries located in South Asia. The countries, which are belonging to this organization are, Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Source: The Asian development Bank

[2] The ‘’Chiang Mai Initiative’’, involves a network of swap and repurchase agreement facilities among the ASEAN+3. Source: The Asian Development Bank

The aim of this thesis is to make an overview of the shortcomings of the ASEAN countries, China, Japan and South Korea for forming a monetary union. On the economic front, the extent of the labor mobility, the interregional trade pattern, trade composition and the degree of symmetry in economic development will be evaluated and compared to the outcomes of the Euro zone[3]. Furthermore, the symmetry in external disturbances will be examined on the basis of the VAR-model. The monetary and fiscal performances of the ASEAN+3 will be evaluated on the basis of the Convergence criteria. Besides this, the stage of political and economic integration will be analyzed and the benefits of establishing a supranational institutional will be discussed.

An optimum currency area is a geographical region of countries with a common currency, which is conducted by the common central bank. The Optimum Currency Area theory, which was introduced by Mundell Fleming, points the optimum characteristics out for forming a successful monetary union. These set of conditions are used for assessing the feasibility of an optimum currency area.

The fulfillment of the first three main criteria[4] of the OCA, which are the Mundell criterion, McKinnon criterion and the Kenen criterion will be described in the second section of this research. The Mundell criterion considers the *factor mobility*. In order to this, Mundell argued that the labor mobility within a common currency area has to be at a considerable level, for substituting the exchange rate flexibility. According to this, the degree of labor mobility will be evaluated for the ASEAN+3 countries. The Kenen criterion considers the diversity of the production sector, he argued that highly diversified economies are providing more insulation against external disturbances, which makes them better candidates for joining a monetary union. Moreover, he enhanced the importance of high *symmetry in economic sectors*, he argued that the characteristics of external shocks are interconnected with different economic sectors. In other words, economies with the same economic sectors tend to experience similar aggregates disturbances. According to this, the composition of the trade of the ASEAN+3 countries will be analyzed. The McKinnon criterion considers the *trade integration* and *openness*. McKinnon claimed that, the larger the interregional trade, the greater is the benefits from a common

[3] The outcomes for the Euro zone countries, which are Austria, Belgium (Luxembourg), Finland, France, Germany, Greece, Italy, Netherlands, Portugal and Spain will be used as a benchmark.

[4] The fourth criteria of the OCA, "the fiscal transfer criterion'' is excluded, because there are not fiscal transfers across the ASEAN+3 countries, accordingly it is ascertain that the ASEAN+3 failed to met the fourth criterion.

currency. In addition to this, he claimed that the higher the openness ratios, the lesser the need for applying the exchange rate as an adjustment mechanism. Therefore, the interregional trade and the openness ratios will be examined and evaluated for the ASEAN+3 countries.

Most of the recent studies emphasized the importance of *symmetry in economic development and external disturbances* for forming a monetary union and add this criterion to their considerations. In order to this, the symmetry in economic development and external disturbances is examined in the third section of this research. The bilateral correlation of the GDP growth rates and GDP deflators are determined and the bilateral correlations of the GDP-shocks are examined on the basis of the VAR-model[5]. Moreover, the results of this research with respect to the degree of symmetry in external disturbances are compared with the results of previous studies.

The fulfillment of the *Convergence criteria* is considered in the fourth section of this research. The Convergence criteria, is an institutional framework, which was designed by the European Union to evaluate the ability of the candidate countries of joining the European Monterey Union on the basis of their fiscal and monetary performances. Therefore, the fiscal and monetary stability in the ASEAN+3 countries will be evaluated on the basis of the Convergence criteria in the fourth section of this research.

The stage of economic and political integration will be analyzed in the last section. The stage of political and economic commitment, which is achieved before the establishment of the Euro will be compared to the current stage of political and economic commitment among the ASEAN+3 countries. Moreover, the benefits and the necessity of establishing a strong and credible supranational institutional (e.g. ECB in Europe) will be discussed. According to this, the shortcoming of the ASEAN+3 on this front will be derived.

[5]The VAR-model was introduced by Blanchard and Quah (1989) they have used this model for identifying aggregate demand and supply disturbances.

2. The First three OCA criteria

The fulfillment of the first three criteria of the Optimum Currency Criteria, which are the Mundell criterion, McKinnon criterion and the Kenen criterion are evaluated in this section.

2.1 Mundell Criterion

Mundell (1961) enhanced in his paper the importance of the labor market flexibility. Exchange rate devaluation could be a solution to unemployment[6], but this is only desirable with free floating exchange rates. Exchange rates devaluation cannot be used as adjustment instrument in a monetary union, because the exchange rates are fixed within the union. For example, A shift of demand occurs from country A to country B, which leads to unemployment in country A and inflationary pressure in country B. A devaluation of the exchange rate will reduce the real wages and the employment may return to a normal level. At the same time, the inflation pressure will aggravate in country A[7]. As a result of this, Mundell claimed that the labor mobility could preserve as an adjustments mechanism, because a labor shift from country A to B, will reduce the unemployment in country A and the inflation pressure in country B. Besides this, Mundell favors small currency areas instead of large currency areas. A labor shift occurs only, when people have better future prospects on long-term, a temporary difference in the employment level is not a reason for people to emigrate. But people within a small currency area are more willing to emigrate as a response to temporary unemployment. Moreover, a small currency area eliminates emigration barriers, like language differences and generous unemployment. Bayoumi and Eichengreen (1994) argued, that an asymmetric disturbances need not to imply costs for the monetary union, if market mechanisms adjust smoothly and restore equilibrium rapidly, even large shocks that displace macroeconomic variables from normal levels will have relatively small costs if the initial equilibrium is restored quickly. Blanchard and Katz (1992) examined the importance of interregional migration for the United States of America, they concluded that interregional migration had accelerated the adjustment of the economy after a shock, which had led to lower costs. Therefore, the labor market flexibility is reported and analyzed for the ASEAN+3.

[6] Exchange rate devaluation leads to higher domestic prices and lower real wages.

[7] This example is obtained from Mundell (1961).

2.1.1 Results and Analyses

Table 1 reflects the extent of the foreign labor force in percentages of the labor force and Table 2 exhibits the size of the migrants in the ASEAN+3 countries.

Table 1: Foreign Labor Force 2000-2005

Foreign Labor force %						
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Indonesia	0.48	9.27	0.48	0.29	0.24	….
Japan	0.23	9.04	0.27	0.28	0.29	0.27
Korea	1.29	59.48	1.58	1.69	1.80	1.46
Malaysia	12.35	3.73	16.49	22.31	19.46	16.08
Singapore	30.63	8.53	27.05	25.94	26.53	28.35
Thailand	3.34	4.22	3.05	2.98	3.07	3.15

Notes: Foreign labor force in percentages of the total labor force.
Source: IMD World Competitiveness Online

Table 2: Extent of the migration 1987-2007

Migration numbers					
Year	**1987**	**1992**	**1997**	**2002**	**2007**
China	-0.07	-0.22	-0.22	-0.30	-0.26
Brunei	4.74	2.55	2.24	1.99	1.78
Cambodia	3.37	2.85	1.32	0.15	-0.07
Indonesia	27.40	24.33	22.0	20.67	18.73
Laos	0.01	-1.37	-3.53	-4.23	-2.54
Malaysia	1.84	2.97	4.54	1.23	0.75
Singapore	9.71	15.40	19.64	9.59	8.97
Thailand	0.02	0.62	1.75	0.75	0.55
Vietnam	-0.82	-0.73	-0.53	-0.49	-0.46
Japan	0.26	0.40	0.44	0.42	0.42

Notes: Net migration rate per 1000 inhabitants are the net number of migrants over a given period divided by the person- years lived by the population over that period. It is expressed as net number of migrants per 1,000 population.
Source: UNCTAD handbook of statistics online 2007

The foreign labor force and the migration in the ASEAN+3 countries, excepts Malaysia and Singapore are substantially lower[8] compared to the Euro zone[9]. The foreign labor force was 16.08% in Malaysia and 28.35% in Singapore, which is considerably high. Kwack and Ahn (2003) had the similar findings, they concluded that dispute the increasing degree of labor markets, the labor mobility still remains low in East Asia. In addition to this, Goto (2001) reported that only 1.2% in the ASEAN+3 area were migrants, which is relatively lower than 5%

[8] According to Kwack and Ahn (2003), the labor mobility can be accounted as high, if the ratio of the foreign labors is higher than 10% in the region and this is not case in the ASEAN+3 area.

[9] See appendix, Table 12 and 13 for foreign labor force and the extent of migrants in the Euro zone.

in Euro zone. Besides this, there is no grew in the labor force observable in Western Europe, this in contrast with South Europe, the foreign labor force has increased in most of the South European countries, after the abolition of the physical borders across the Euro zone countries[10]. In conclusion, the degree of interregional labor mobility across the ASEAN+3 is not at a considerably level, which has to be at considerably level to offset external shocks within the common currency union.

2.2 McKinnon Criterion

The McKinnon Criterion considers the degree of interregional trade and the trade openness of the potential members of an optimum currency area according to this, the subsection is separated into two parts.

2.2.1 Interregional Trade

McKinnon (1963) argued that high interregional trade indicates greater benefits from adopting a common currency, because a fixed exchange rate eliminates exchange rate risk and leads to greater trade across the member countries. Many researches are done for testing the validity of this assumption. Rose (2000) examined the relationship in a cross-sectional study and found that the bilateral trade of countries with the same common currency was three time higher than the bilateral trade of non-common currency area members. Glick and Rose (2001) measured the relationship on the basis of a time-series cross sectional study and found that the bilateral trade of countries rose by 100% after they joined a monetary union. Moreover, Rose and Engel (2002) claimed that the trade of common currency area members tends to be larger after joining a monetary union. Furthermore, The European Economy (1990) declared that EMU experienced savings of 0.5% of GDP form lower transaction costs.

[10] The abolition of the psychical borders had been recorded in the Schengen agreement. More labor market flexibility within the Euro zone is the main propose of this agreement. Belgium, Netherlands, France, Germany, Greece, Spain, Portugal had abolished border controls on persons in 1995, Austria and Italy had abolished border controls in 1997. Source: Euro Stat Online.

2.2.2 Analyses and Results

The trade direction of the ASEAN+3 is reported in the next two Tables. Table 3 and 4 show the export and import direction of manufactured goods for the ASEAN+3. The Tables are separated into 3 columns, which are the, interregional trade, the size of the trade with the rest of the world and the year on year change of the interregional trade. The size of the trade direction for the ASEAN+3 is reported, for the period 1989-1997 and for the period 1998-2004[11].

Table 3: Export direction for the ASEAN+3

Year	Intra-group trade %	Trade with the rest of the world %	Change in the intra-group trade %
1989	25.76	74.24	….
1990	26.78	73.22	+1.02
1991	28.28	71.72	+1.50
1992	27.87	72.11	- 0.41
1993	30.51	69.49	+2.64
1994	32.49	67.51	+1.98
1995	34.91	65.09	+2.42
1996	36.24	63.76	+1.33
1997	34.08	65.92	- 2.16
1998	28.59	71.40	- 5.49
1999	31.04	68.96	+2.45
2000	33.65	66.35	+2.61
2001	33.87	66.13	+0.22
2002	34.33	65.67	+0.46
2003	35.42	64.58	+1.09
2004	35.43	64.57	+0.01

Source: UNCTAD handbook of statistics online 2007

[11] According to the Table the impact of the Financial Crisis on the trade pattern can be derived.

Table 4: Import direction for the ASEAN+3

Year	Intra-group trade %	Trade with the rest of the world %	Change in the intra-group trade %
1989	31.08	68.92	….
1990	30.56	69.44	0.52
1991	33.84	66.16	+3.28
1992	34.68	65.32	+0.84
1993	37.33	62.67	+2.65
1994	38.83	61.17	+1.50
1995	39.34	60.66	+0.51
1996	38.64	61.36	-0.70
1997	39.00	61.00	+0.36
1998	39.34	60.66	+0.34
1999	40.94	59.06	+1.60
2000	41.84	58.16	+0.90
2001	41.25	58.75	-0.59
2002	42.99	57.01	+1.74
2003	44.11	55.89	+1.12

Source: UNCTAD handbook of statistics online 2007

As can be seen from Table 3 and 4 the interregional trade across the ASEAN+3 has grown. The interregional export share expanded with 9.86% in the last 15 years and the interregional import share expanded with 9.86%. The trade across the ASEAN+3 countries has decreased considerably between, 1997 and 1998. This was caused by the Asian Financial Crisis, the trade interregional trade started to recover in 1999.

By contrast, 50% of the Euro zone trade can be accounted as interregional trade, which is higher than the average of the ASEAN+3. Nevertheless, the interregional trade of the ASEAN+3 favors a common currency, because most of the ASEAN+3 countries are important trading partners. A fixed exchange rate among the ASEAN+3 countries indicates no currency risks and transparent prices, which would lead to greater interregional trade.

2.2.3 Trade openness

McKinnon argued that agents in a very open economy often make contracts in foreign price levels, which makes the use of exchange rates as an adjustment mechanism redundant. According to this, giving up the use of exchange rates is costless for the member countries. Obviously, the openness ratio is an important indicator for measuring the ability of adopting a common currency. Therefore, the openness ratios are examined for the ASEAN+3 and reported in Table 5.

2.2.4 Analyses and Results

Table 5 reflects the trade openness ratios over the period, 1999-2006 for the ASEAN+3 countries. The trade openness ratio[12] is measured by the ratio of the sum of export and imports in goods and services to the twice level of GDP share of a countries trade export and import. The GDP and the trade openness ratios of the Euro zone and the world are added to this Table.

Table 5: Trade openness

	GDP	GDP	Export	Export	Import	Import	Trade Openness %	
Year	**1999**	**2006**	**1999**	**2006**	**1999**	**2006**	**1999**	**2006**
Brunei	4599	11562	2568	8227	2227	2893	0.52	0.48
Cambodia	3517	7258	1426	4993	1886	5501	0.47	0.72
Indonesia	140001	364790	49720	112641	38402	95082	0.31	0.28
Laos	1454	3437	522	1236	643	1453	0.40	0.38
Malaysia	79148	150672	96016	176257	76188	150672	1.10	1.10
Philippines	76157	117562	39197	54526	39075	55999	0.51	0.44
Thailand	82611	132158	71320	152144	55940	144013	0.77	0.42
Vietnam	28684	60999	14332	44812	46846	15151	0.51	0.49
Japan	4368735	4368435	448994	797229	379706	785487	0.10	0.20
China	1083278	2644681	220964	1061681	190323	852769	0.20	0.36
Singapore	82611	132155	139613	330819	136290	190528	1.70	2.00
ASEAN+3	5950795	7993709	1084672	2744565	967526	2299548	0.17	0.32
Euro Zone	5950795	10587007	2153743	4051473	2290281	3734505	0.27	0.37
World	31017512	48597903	5716352	12065414	5850664	12303738	0.18	0.25

Notes: "GDP" is the nominal gross domestic product in US$ current prices in millions, "exports" and "imports" of goods and services are in US$ current prices in millions, trade is the sum of exports and imports.
Source: UNCTAD handbook of statistics online 2007

As can be seen in Table 5, ASEAN+3´s GDP as a share of world was 16% in 2006, which is lower than the 22% of the Euro zone. The openness ratios for some of the ASEAN+3 countries

[12] Kwack and Ahn (2003) used the similar method for examining the trade openness ratios in his research.

are considerably high[13], namely Malaysia had an openness ratio of 1.1 and Singapore had an openness ratio of 2.0. This is in contrast with the major East Asian economies, like China and Japan, which had an openness ratio of 0.36 and 0.20. The openness ratio of East Asia as a region rose from 0.15 to 0.32, which is roughly the same as the openness ratio of the Euro Zone. The findings are similar to the Kwack and Ahn (2003) they concluded that the openness and the market size of the countries in East Asia may be viewed as high. The high openness ratios are indicating lesser cost for not having the possibility for using the exchange rates as adjust mechanism, when these countries form a common currency area.

2.3 Kenen Criterion

The Kenen criterion considers the diversivity of the production sector and the symmetry in economic sectors. He argued that the characteristics of external shocks are interconnected with different economic sectors. Countries with similar economic sectors tend to experience the same external disturbances, consequently they will implement the same adjustment instrument. In order to this, the composition of the trade of the ASEAN+3 countries are reported in Table 6. Moreover, Bayoumi and Eichengreen (1999) argued that the higher the shares in manufactured goods and similar goods in which the prices are largely determined by the producer, as opposed to commodities whose prices are set in international market, the greater are the benefits of a common currency. They claimed this was because fluctuations in bilateral exchange rates have considerably more impact on intra-industry trade in differentiated but sustainable products than on trade in homogenous products with a well-integrated world market. Therefore, they have evaluated the trade composition of ASEAN+3 and found that there was a rapid shift towards exports of manufacturing goods over the past decades, which makes the trade composition of the ASEAN+3 favorable.

[13] This implies that a significant part of their income is generated by trade.

2.3.1 Analyses and Results

Table 6: Exports breakdown by economic sector

Imports breakdown by economic sector						
	Agriculture	**Agriculture**	**Industry**	**industry**	**Services**	**Services**
Year	**1998**	**2006**	**1998**	**2006**	**1998**	**2006**
China	6.90	3.02	81.60	88.31	11.50	8.62
Hong Kong	3.01	1.19	80.79	80.51	16.29	18.30
Indonesia	14.09	..	77.98	83.23	7.93	..
Japan	0.90	0.84	84.30	85.17	14.80	15.92
Korea	2.56	1.42	81.64	79.55	15.80	13.42
Malaysia	11.26	8.54	75.28	30.45	13.46	11.91
Philippines	..	5.71	….	82.31	…	11.98
Singapore	3.38	1.54	79.65	80.64	16.97	17.81
Taiwan	2.35	1.71	84.75	86.86	12.90	11.43
Thailand	17.06	13.95	63.58	70.58	19.36	15.47
Exports breakdown by economic sector						
	Agriculture	**Agriculture**	**Industry**	**industry**	**Services**	**Services**
Year	1998	2006	1998	2006	1998	2006
China	7.56	5.79	76.56	82.96	15.88	11.25
Hong Kong	6.00	3.20	82.21	86.99	11.79	9.81
Indonesia	9.98	..	64.85	..	25.18	..
Japan	14.54	9.07	57.48	71.03	27.97	19.90
Korea	7.93	4.90	71.53	76.69	20.54	18.41
Malaysia	5.81	5.50	76.00	79.31	18.20	15.19
Philippines	..	6.19	….	83.79	…	10.02
Singapore	4.10	2.32	79.65	77.12	16.36	20.55
Taiwan	6.06	4.10	75.87	82.06	18.06	13.84
Thailand	6.79	4.52	71.56	75.08	21.65	19.80

Notes: the export breakdowns by economic sectors are given in the percentages of total export, the import breakdowns by economic sectors are given in the percentages of total import.
Source: World Trade Organization Statistics Database

The trade pattern of the ASEAN+3 countries reflects a shift towards industrial trade. As can be seen from the Table, approximately 80% of all the ASEAN+3 countries total trade can treated as industrial trade, which means that the ASEAN+3 is heavily trading in manufacturing and constructing goods. This indicates high degree of similarities among the candidate countries, with respect to their trade composition. This is favorable for a monetary union, because external shocks are interconnected with different economic sectors, apparently the ASEAN+3 economies are tend to experience the similar aggregate disturbances.

3. Symmetry in economic development and external disturbances

The symmetry in stage of economic development and the symmetry in external disturbances for the ASEAN+3 are discussed in this section.

3.1 Symmetry in Economic Development

The similarity in economic development encourages economic integration. Bayoumi, eral.(2000) claimed that economic integration among countries with the similar level of economic is easier. They argued that this was also the case in the Euro zone, the monetary integration in the Euro zone was associated with high degree of symmetry in output per capita. According to this, the similarities in terms of economic development are analyzed on the basis of the correlation pattern between GDP growth rates and GDP deflators, for the period 1998-2006 and are compared to the outcomes of the Euro zone countries.

3.1.1 Results and Analyses

Table 7: Correlation GDP Growth Rates 1998-2006

Correlation GDP Growth Rates										
	CH	**BR**	**CAM**	**IN**	**JP**	**KO**	**MA**	**MY**	**PH**	**SN**
CH		-0.96	0.70	-0.21	-0.27	0.04	-0.59	0.00	-0.80	-0.41
BR	-0.96		-0.65	0.25	0.23	-0.06	0.66	0.05	0.88	0.43
CAM	0.70	-0.65		-0.72	-0.79	-0.61	-0.90	0.57	-0.26	-0.84
IN	-0.21	0.25	-0.72		0.91	0.85	0.78	-0.56	-0.05	0.57
JP	-0.27	0.23	-0.79	0.91		0.93	0.71	-0.81	-0.15	0.68
KO	0.04	-0.06	-0.61	0.85	0.93		0.58	-0.87	-0.44	0.64
MA	-0.59	0.66	-0.90	0.78	0.71	0.58		-0.46	0.35	0.85
MY	0.00	0.57	-0.56	-0.81	-0.30	-0.87	-0.46		0.43	-0.75
PH	-0.80	0.88	-0.26	-0.05	-0.15	-0.44	0.35	0.43		0.07
SN	-0.41	0.43	-0.84	0.57	0.68	0.64	0.85	-0.75	0.07	

Notes: (a) these results are computed with EViews 6; (b) country notation is as follow: CH for China, BR for Brunei Durassalem, CAM for Cambodia, IN for Indonesia, JP for Japan, KO for Korea, MA for Malaysia, MY for Myanmar, PH for Philippines and SN for Singapore.
Source: IMD World Competitiveness Online

Table 8: Correlation GDP Deflators 1998-2006

Bilateral Correlation Rates										
	CH	**HK**	**IN**	**JP**	**KO**	**MA**	**PH**	**SN**	**TW**	**TH**
CH		0.50	-0.47	0.18	-0.15	-0.24	-0.56	0.84	0.44	0.05
HK	0.50		0.43	0.80	0.50	0.67	0.15	0.21	0.64	0.83
IN	-0.47	0.43		0.67	0.75	0.85	0.83	-0.57	0.23	0.72
JP	0.18	0.80	0.67		0.50	0.81	0.36	-0.01	0.47	0.81
KO	-0.15	0.50	0.75	0.50		0.51	0.57	-0.30	0.21	0.74
MA	-0.24	0.67	0.85	0.81	0.51		0.61	-0.38	0.50	0.85
PH	-0.56	0.15	0.83	0.36	0.57	0.61		-0.40	0.09	0.43
SN	0.84	0.21	-0.57	-0.01	-0.30	-0.38	-0.40		0.31	-0.15
TW	0.44	0.64	0.23	0.47	0.21	0.50	0.09	0.31		0.60
TH	0.05	0.83	0.72	0.81	0.74	0.85	0.43	-0.15	0.60	

Notes: (a) these results are computed with EViews 6; (b) country notations is as follow: CH for China, HK for Hong Kong, IN for Indonesia, JP for Japan, KO for Korea, MA for Malaysia, PH for Philippines, SN for Singapore, TW for Taiwan and TH for Thailand
Source: IMD World Competitiveness Online

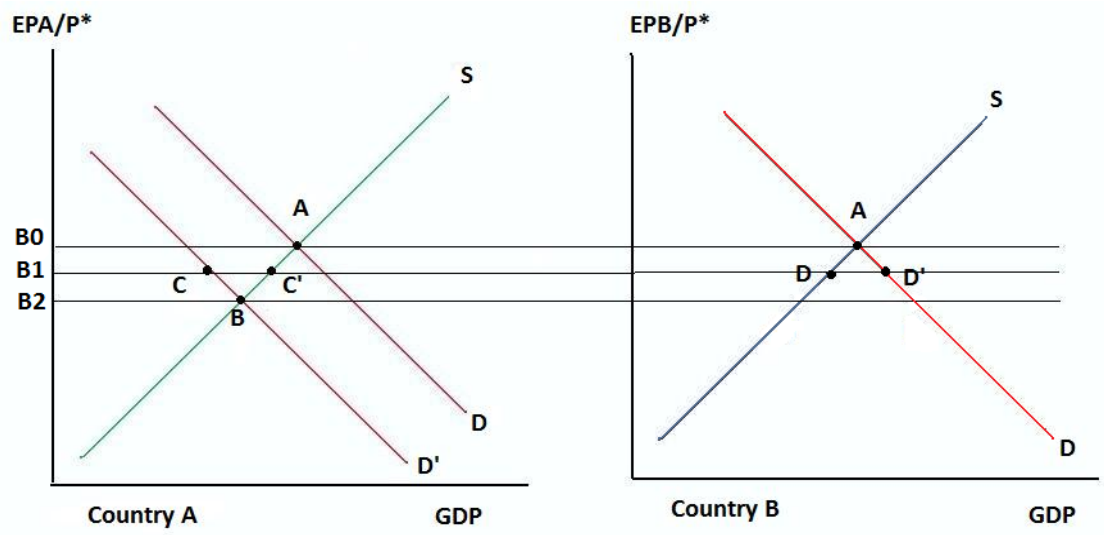
As can be seen from Table 7 and Table 8, GDP growth rates and GDP deflator rates are for several countries negatively correlated. This in contrast with the Euro Zone, the correlation between GDP deflators and GDP growth rates are for most of the Euro Zone[14] countries positively correlated, this implies a high degree of symmetry in terms of economic development. Nevertheless, three core groups with considerably high correlation with respect to their GDP growth rates can be distinguished, the first group is Japan, Korea, Indonesia, Singapore and Malaysia, the second core group is Cambodia and China and the third group is Myanmar, Brunei and Philippines. Moreover, the correlation between the GDP deflators reflect high symmetry for three groups of countries, the first group is Indonesia, Japan, Korea, Thailand, Malaysia, and Philippines, the second group is Singapore and China and the third group is Hong Kong, Thailand and Taiwan. The distinctions in terms of economic development could discourage the economic integration of the ASEAN+3 countries, fiscal transfers from rich to poor countries could preserve as a solution.

[14] See appendix Tables 14 and 15 for correlations between the GDP growth rates and GDP deflators for the Euro zone.

3.2 The Symmetry in External Disturbances

The degree of symmetry in economic development and external shock is a significant indicator, which assess the feasibility a common currency area. In order to this, the consequences of an asymmetric demand shock in a common currency area are shown in Figure 1.

Figure 1: An Asymmetric Demand Shock



Source: The model, the description of the model and the description of the consequences of an asymmetric shock in one of the member countries are obtained from Baldwin and Wyplosz (2006)

• The Figure above illustrates the supply and demand of goods as a function of the real exchange rate for two countries, which are joining a monetary union. The demand curve is a downward sloping curve, because a lower domestic price P_a (relative to the price of foreign goods) indicates a lower real exchange rate *(EP/P*)* and higher demand for domestic goods. The supply curve is upward sloping, because a higher domestic price P_a stimulates the production of domestic goods. E is denoted as foreign currency units per unit domestic currency.

• Suppose there is a negative demand shock in country A, the demand curve will shift to D', which indicates a depreciation of the exchange rate *(E to $E_{1)}$.*

• The new exchange rate will lead to an excess supply of goods in country A (C to C') and excess demand in country B (D to D').

• The excess supply of goods, indicates lower prices in country A, the prices will fall to P'_A, the economy will move to point B, the real exchange rate in county A is equal to $E_2P'_A/P^*$.
• The excess demand in country B will lead to higher prices, P_B increases to P'_B. The economy will move up along the demand curve from point D' to point A, the real exchange is $E_2P'_B/P^*$
• The total effect is that the prices and the output are lower in country A and the prices in country B are higher and the output is unchanged. Apparently, the ratios of the prices (P_A/P_B) ratio are changed, which indicates the change of the real exchange rate between country A and B. According to this, country B and A are obligated to pursue a different instrument for adjusting the economy, this may implies extra costs for the monetary union. Obviously, the symmetry in external shocks has to be considered before forming a monetary union. Many researchers have analyzed the degree of the symmetry in the nature of macroeconomic shocks for the Euro zone and the ASEAN+3 on the basis of the VAR-model. This subsection includes a short introduction of the VAR-model, a selective survey of the literature on the nature of disturbances in East Asia, own estimates for the ASEAN+3 on the basis of the VAR-model and a comparison between the own results and the results of earlier researches.

3.2.1 The VAR-Model

The VAR-model was introduced by Blanchard and Quah (1989), which was designed for computing macroeconomic disturbances and to distinguish them from preceding responses. The main propose of the VAR-model[15] is to discover the causal relationship between pairs of time series variables. The term "vector" is a simplification of the univariate and bivariate series. Suppose, there are two time-series variables Y_t and X_t then the following estimation can be written.

$$Y_t = \beta_{10} + \beta_{11} y_{t-1} + \beta_{12} x_{t-1} + \nu^y_t \qquad (1.1)$$

$$X_t = \beta_{10} + \beta_{21} y_{t-1} + \beta_{22} x_{t-1} + \nu^x_t$$

Equation 1.1 illustrates a system in which each variable is a function of its own lag, and the lag of the other variable in the system. This system contains two variables X and Y. In the first equation

[15] The description of the VAR model is gathered from Pindyck and Rubinfield (2007)

y_t is a function of its own lag y_{t-1} and the lag of the other variable in the system, namely x_t. In the second equation, x_t is a function of its own lag x_{t-1} and the lag of the other variable.

Now, there are two variables, y (the growth rates of GDP) and x (the CPI). Equation 1.2 illustrates the non-stationary and cointegrated relationship between these two variables.

$$\Delta y_t = \beta_{11}\Delta_{yt-1} + \beta_{12}\Delta_{xt-1} + v^{\Delta y}t \qquad (1.2)$$

$$\Delta x_t = \beta_{21}\Delta_{yt-1} + \beta_{22}\Delta_{xt-1} + v^{\Delta x}t$$

Before applying the VAR analysis the potential cointegration relationship should be tested. The regression residuals are needed, to test the cointegration and the spuriousness of the relationship. If the *tau*, (unit root t-value) is greater than the critical value of 5%, the relationship can be validated as spuriousness. After this the VAR equation can be estimated, by estimating the least squares.

3.2.2 A Selective Survey of the Literature

Bayoumi and Eichengreen (1994) extended the VAR-model and based their model on the AD-AS framework that distinguishes permanent shocks from long-term shocks. They have examined the bilateral correlation between demand and supply shocks for the ASEAN+3 countries on the basis of this model. The results were used for evaluating the degree of symmetry in external shocks. They found high degree of symmetry between the GDP shocks for two groups of countries, the first subgroup was Japan and Korea and the second subgroup was Hong Kong, Indonesia and Singapore. This model is used by a lot of researchers for examining the symmetry in external disturbance. Kwack and Ahn (2003) used the same model, over the period, 1975-2001, they found high degree of symmetry in supply and demand shocks for the similar subgroups. Bayoumi, eral.(1999) used this model for comparing the degree of symmetry in aggregate and demand supply shocks between the ASEAN+3 countries and the Euro zone countries, they found that the degree of symmetry in aggregate demand and supply shocks were higher between the ASEAN+3 countries. This is contrast with, Beak and Song (2001) they extended the same model by using more time periods and countries and they found higher degree

of symmetry in external disturbances among the Euro zone countries. Yuen (2000) extended this model by providing other dynamic measures of the countries for different time periods and suggested on the basis of symmetry in macroeconomic disturbances, geographic proximity and socio-cultural compatibility, three sets of countries as plausible candidates for monetary unification, namely Singapore and Malaysia, Japan and Korea, Taiwan and Hong Kong. Moreover, Wyplozs (2001) applied the basic VAR-model (no distinction between supply and demand shocks) for examining the degree of symmetry in disturbances across the ASEAN+3 countries, he found high symmetry in external shocks disturbances for one subgroup, namely Korea, Malaysia and Thailand.

3.2.3 Own estimates

The VAR-model is applied in this research for estimating the bilateral correlation of the GDP shocks across the ASEAN+3 countries.

The VAR equation is estimated on the basis of two variables, [Y and X], where the [Y] is the growth rate of the GDP[16], for the period 1998-2006 and [X] is the growth rate GDP deflator[17] for the period 1998-2006.

The first step was estimating the fitted squares regressions of [Y] on [X] for each country. The R^2 of these equations was very large and *t*-statistics were also very large for each country, which indicates that the results are strong.

Secondly, the regression residuals were used for testing the cointegration between the two variables. In order to this, the least squares residuals were calculated. The value of the *tau,* (unit root *t*-value) was greater than the critical value of 5% for all the ASEAN+3 countries, so the null of no cointegration was accepted for all these countries. According to this, the spuriousness of the relationship between the GDP growth rates and the inflation growth rates was validated.

[16] The GDP growth rates for China, Hong Kong, Korea, Japan, Indonesia, Malaysia, Singapore and Thailand for the period 1998-2006 are obtained from IMD World Competitiveness Online.

[17] The GDP deflator for the same group, for the period 1998-2006 is gathered from the World Bank Database Online 2007.

As a result of this, the VAR equation was estimated for the variables, [ΔPt and ΔGt]. Lags of 2 years were set, which was adequate to cover the dynamics for the most of countries. Finally, the values of the residuals from the equation were identified as the values of the GDP shocks. The bilateral correlation between the GDP shocks were determined, the results are shown in Table 9.

3.3 Own Results and Analyses

Table 9: ASEAN+3 Correlation GDP shocks 1998-2006

ASEAN+3 Correlation GDP shocks									
	CH	**HK**	**IN**	**JP**	**KO**	**MA**	**PH**	**SN**	**TH**
CH		0.29	0.86	0.17	-0.12	-0.15	0.07	0.20	-0.20
HK	0.29		0.56	0.79	0.73	-0.33	0.66	0.50	-0.51
IN	0.86	0.56		0.49	0.00	-0.43	0.32	0.36	-0.23
JP	0.17	0.79	0.49		0.48	-0.18	0.69	0.82	-0.29
KO	-0.12	0.73	0.00	0.48		-0.15	0.70	0.39	-0.22
MA	-0.15	-0.33	-0.44	-0.18	-0.15		-0.63	0.23	-0.47
PH	0.07	0.66	0.32	0.69	0.70	-0.63		0.43	0.28
SN	0.20	0.50	0.36	0.82	0.39	0.23	0.43		-0.30
TH	-0.20	-0.51	-0.23	-0.29	-0.22	-0.47	0.28	-0.30	

Notes: (a) these results are obtained with EViews 6; country notation is as follow: CH for China, HK for Hong Kong, KO for Korea, Japan for JP, IN for Indonesia, MA for Malaysia, SN for Singapore and TH for Thailand.

Table 9 reflects a cogent picture for the ASEAN+3 countries. According to the outcomes, two subgroups can be distinguished, the GDP shocks of Hong Kong, Japan, Korea, Philippines and Singapore are highly significant positive correlated and also the GDP shocks of China and Indonesia are highly positive significant correlated. These results are not so surprising, because most of these countries are important trading partners[18]. By contrast, the supply shocks of Thailand and Malaysia are generally negative significant correlated with the GDP shocks of the other ASEAN+3. Furthermore, the GDP shocks of China are commonly small or negatively correlated with the GDP shocks of other ASEAN+3 countries. Wyplosz (2001) found the similar results for China. The rest of the results are not directly comparable, Wyplosz indentified one subgroup with high degree of correlation, which was Korea, Malaysia and Thailand. The results of this research are partially similar to the results of Bayoumi and Eichengreen (1994) they found

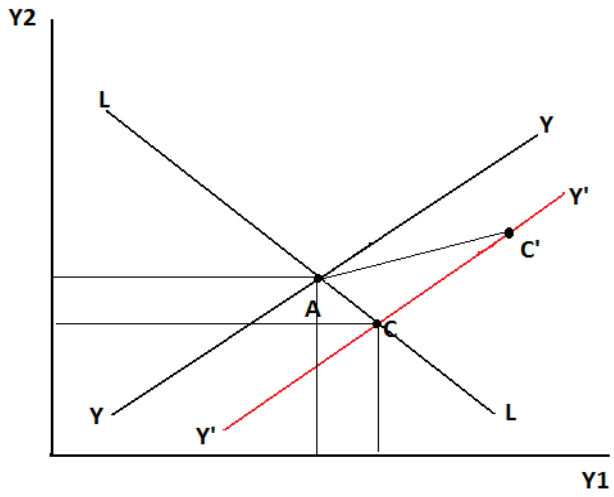
[18] According to Frankel and Rose (1998), important trading partners are usually showing similar external disturbances.

high degree of symmetry between the GDP shocks for two groups of East Asian countries, the first group was Japan and Korea and the second group was Hong Kong, Indonesia and Singapore. Obviously the results in Table 9 are reflecting high degree of symmetry in GDP shocks among the countries of these subgroups. This indicates that the economies of the ASEAN+3 countries are becoming more and more symmetric.

5. Convergence Criteria

Convergence criteria also known as the Maastricht criteria were designed in the 1990s by the European Commission and are being used as an indicator for measuring the ability of (potential) members of joining the European Monetary union on the basis of their fiscal and monetary position. Losing monetary policy indecency is one of the consequences of a common currency area. Consequently, fiscal policy is the only policy that the government can pursue in case of an asymmetric aggregate supply or demand shock. The consequences of an expansionary fiscal policy in a common currency union are described in Figure 2.

Figure 2: An Expansionary Fiscal Policy



Source: The monetary model, the description of the monetary model and the description of the consequences of pursuing an expansionary fiscal policy in one of the member countries are obtained from Hansen eral. (1992)

• The monetary model shows the simultaneous equilibrium between the commodity and money market, the market conditions are based on the traditional Keynesian behavioral functions. The union consists of two countries, namely country 1 and country 2.

• The equilibrium in the commodity market is defined by equation 2.1 and equation 2.2. The '+' and '-'are reflecting the positive and negative relationships.

$$Y_1 = C_1(Y_1, T_1) + I_1(r) + G_1 + N_1(Y_1, Y_2, Y_w, k) \qquad (2.1)$$

$$+ \quad - \quad - \quad - \quad + \quad + \quad +$$

$$Y_2 = C_2(Y_2, T_2) + I_2(r) + G_2 + N_2(Y_2, Y_1, Y_w, k) \quad (2.2)$$

$$+ \quad - \quad - \quad - \quad + \quad + \quad +$$

Y reflects the production (gross domestic product), *C* reflects the private consumption, T reflects the net tax revenue, *I* reflects the private investments, *G* reflects the government spending for public consumption and investments and *N* reflects the net exports and the balance on the current account of the balance of payments. The rest of the world is assumed as one economy with the production $Y_{w,}$ r reflects the interest rates and *k* reflects the exchange rate of the common currency union.

• There is an equilibrium in the money market, when the actual money supply in the union *M* corresponds to the money demand in the two member countries. Equation 2.3 reflects the equilibrium conditions for the money market.

$$M = (Y_1 + Y_2)\, L(r) \quad (2.3)$$

The money supply *M* is exogenously given, the value of the exchange rate of the union is determined by the market, as a result of this the supply of money in the union is *technically controllable.* The demand for money is proportional to the aggregate production of the two member countries ($Y_1 + Y_2$), with proportionality factor of *L(r)*, which is a decreasing function of the interest rates. Moreover, *L(r)* shows the income velocity of the money supply $V(r) = (Y_1 + Y_2)/M = 1/L(r)$

Apparently, there are three endogenous variables in this model, which are Y_1, Y_2 and *k* and there are seven exogenous variables, which are $T_{1,}\, T_{2,}\, G_{1,}\, G_{2,}\, Y_{w,}\, M$ and r[19].

• The YY-curve shows the positive relationship between country Y_1 and country Y_2, which is derived from the equilibrium conditions of the commodity market. Through the trade linkage between the member countries, a higher level of economic activity in country Y_1/Y_2, will lead to more imports from country Y_2/Y_1. This indicates higher exports for Y_2/Y_1, which leads to a higher level of economic activity in country Y_2/Y_1.

• The LL-curve reflects the negative relationship between Y_1 and Y_2, which is derived from the equilibrium conditions of the money market. A higher level of economic activity in country Y_1/Y_2 will absorb a greater share of the money supply in the union. Due to the exogenous interest rates, a greater economic activity in country Y_1/Y_2 can only financed by the proportional displacement of the economic activity in country Y_2/Y_1.

[19] For more information about the determination of the endogenous variables, see appendix Hansen eral. (1992)

•Point A is the simultaneous equilibrium in the commodity market and the money market in the member countries

• Suppose an aggregate demand or supply shock exists in country Y_1, the government of country Y_1 pursues an expansionary fiscal policy through increasing the government demand or through reducing the tax of payments.

• The (YY) will shift to left, (YY to YY'). This will increase the economic activity in country Y_1, (Y_1 to Y_1')

• The money demand will increase, which puts the interest rate under pressure, this result in a tendency towards capital inflow from outside. The common currency *k* will appreciate as a result from this.

• At the same time country Y_2, will be hit by the deterioration in competitiveness, which is caused by the appreciation of the common currency, the output level will be move from Y_2 to Y_2'.

The following conclusion can be made an expansionary fiscal policy is thus tantamount of a beggar thy neighbor policy in relation to the common currency members. Apparently, pursuing fiscal policy is not appreciated in a monetary union. According to this, the European Commission has designed this institutional framework for evaluating the capability of losing monetary and to prevent the use of an expansionary fiscal policy by obligating the member countries to maintain their fiscal position close the required level. The main five criteria are based on Article 131(1) of the European Community Treaty. The Convergence criteria are separated into four categories. The first criterion includes that the inflation of a candidate country should not be higher than 1.5 percentage points than the average inflation of the three countries with the lowest inflation rate[20]. The second criterion includes that the long-term interest of a candidate country may not be higher than 2.0 percent points than the average long-term interest rate of the three countries with the lowest inflation rates. Afxentiou (2000) argued that the first and second criteria were designed to guarantee monetary stability by supporting a fixed exchange rate regime among member countries. The third criterion includes that the currency of the candidate country may not devaluate for two years. Brouwer eral.(2007) defined that the first three criteria are designed to

[20] The European Community argues that the achievement of a high degree of price stability will be apparent from a rate of inflation which is close to that of, at most, the three best-performing Member State in terms of price stability, source: EC online.

cover the loss of an independent monetary policy. The fourth criterion can be separated into two subcategories, which are the deficit and the debt criterion, which were designed for bringing the public finance of the candidate countries to a sustainable level. The first subcriterion includes that the annual government deficit to the GDP must not exceed three percent at the end of the preceding fiscal year and that the ratio of the government debt to the GDP must not exceed 60% at the end of the preceding fiscal year. Bayoumi eral.(2000) claimed that the aim of limiting the government debt and government deficit was to eliminate debt runs that might threaten the stability of European financial markets an pressure for debt bailouts, as well as negative spillovers from the fiscal inequities of individual candidate countries to other members through pressure for an excessive relaxation of monetary policy. Afxentiou (2000) argued that these criteria were designed for protecting the European Union from threats of inflation, which may occur from general government deficit or debt. Also Brouwer, eral.(2007) claimed in their paper that the last criteria has been designed for protecting the EMU from threats of inflation and to avoid the displacement of economic activity through fiscal policy.

5.1 Analyses and Results

The scores of the ASEAN+3 countries, for the year 2005 are reported in Table 10 and the scores of the Euro zone are reported, for the year 1998 in Table 11. The central government debt and the budget deficit are in percentage of the total GDP. Exchange rates devaluations of the currencies of candidate/member countries against the Yen/Euro are observed and noticed. The Euro zone has implemented a target zone, which includes that the currency of a candidate country may fluctuate against the Euro within the fluctuation margin of 15%. The same method is used for the ASEAN+3 countries, the currency of the member countries are allowed to fluctuate against the Yen[21] within the fluctuation margin of 15%. In order to this, the exchange rates devaluation are observed, over the period 2003-2004, for the ASEAN+3 and over the period 1996-1998 for the Euro zone. As a result of this, the fiscal and monetary position of the Euro zone countries before the introduction of the euro is used as a benchmark.

[21] Before the Asian financial crises most of the East Asian countries implemented soft dollar pegs, which made them susceptible to fluctuations of the Yen against the dollar, consequently the depreciation of the yen against the dollar aggravated the financial crisis. After the Asian Financial crises, the IMF advised East Asia countries, to implement free floating exchange rates. Besides this, several empirical studies suggested to increase the weight of the Yen in the currency basket. Accordingly, the Yen is applied as the anchor currency, with respect to ERM II.

Table 10: Scores Maastricht Criteria ASEAN+3

	Interest rate (%)	Inflation rate (%)	Budget deficit	Government debt, total (% GDP)	ERM II	Criteria satisfied?
year	**2005**	**2005**	**2005**	**2005**	**2005**	
Suggested	7.16	2.94	-3	60		
Malaysia	**5.95**	**2.03**	-3.60	**44.02**	▪ Yes	▪ **Yes**
Philippines	10.18	7.63	**-2.70**	71.50	▪ Yes	▪ **No**
Thailand	**5.79**	**4.54**	**0.31**	**47.60**	▪ Yes	▪ **Yes**
Japan	**1.68**	**-0.27**	-5.35	196.30	▪ Yes	▪ **No**
China	**8.50**	**1.80**	**-1.24**	**3.77**	▪ Yes	▪ **Yes**
Singapore	**5.30**	**0.50**	**0.75**	**39.12**	▪ Yes	▪ **Yes**
Korea	**5.59**	**2.75**	**0.43**	**29.46**	▪ Yes	▪ **Yes**

Source: the inflation rates, budget deficit and the government debt are obtained from IMD World Competitiveness Online; the exchange rates are obtained from the historical exchange rate site

Table 11: Scores Maastricht Criteria Euro zone

	Inflation rate (%)	Interest rate (%)	Budget deficit	Government debt, total (% GDP)	ERM II	Criteria satisfied?
Year	**1998**	**1998**	**1998**	**1998**	**1998**	
Suggested	2.38	8.74	-3	60		
Austria	**0.90**	**6.42**	-2.33	**64.25**	▪ Yes	▪ **No**
Belgium	**0.95**	**7.25**	-0.76	**117.78**	▪ Yes	▪ **No**
Luxembourg	**1.00**	**5.27**	3.45	4.15	▪ Yes	▪ **Yes**
Netherlands	**2.00**	**6.50**	-0.87	**65.71**	▪ Yes	▪ **No**
Germany	**1.00**	9.02	-2.17	**60.24**	▪ Yes	▪ **No**
Greece	4.80	18.56	…	**105.82**	▪ Yes	▪ **No**
Finland	**1.40**	**5.35**	1.67	48.17	▪ Yes	▪ **Yes**
France	**0.80**	**6.55**	-2.64	**60.24**	▪ Yes	▪ **No**
Italy	**1.91**	**8.64**	-2.84	**116.90**	▪ Yes	▪ **No**
Spain	**1.80**	**5.01**	**-3.22**	**64.12**	▪ Yes	▪ **No**
Portugal	2.80	**7.24**	**-3.40**	**52.10**	▪ Yes	▪ **No**

Source: the inflation rates, budget deficit and the government debt are obtained from IMD World Competitiveness Online; the exchange rates are acquired from Euro Stat Online

The outcomes are positive for the reported ASEAN+3 countries. All the countries, excepts Philippines satisfied the inflation criterion, which implies high degree of price stability. In addition to this, only Philippines failed to met the interest criterion, the interest rate was 3.02% higher than suggested. Besides this, only two countries, namely Japan and Malaysia had a higher

budget deficit than 3% of GDP. Japan and Philippines failed to limit their government debt. Japan[22] had a government debt of 196.30%, which is exceptionally high.

The scores of the ASEAN+3 countries are considerably better than the scores of the Euro zone in 1998. Most of the Euro zone countries failed to achieve all criteria, excepts Finland and Luxembourg. Greece and Portugal failed to met the interest criterion. Moreover, Greece and Portugal failed to met the inflation criterion. The inflation rate of Greece was 18.56% and the inflation rate of Portugal was 7.24%, which is significantly high. Portugal and Spain failed to met the budget deficit criterion, Portugal had a budget deficit of -3.40% of GDP and Spain had budget deficit of -3.22% of GDP. The current scores of the Euro zone compared to the outcomes of 1998 are relatively better. The countries, which achieved to meet the criteria, have increased from one country to three. The score of the ASEAN+3 are implying that the most of the countries are capable to lose their monetary indecency and to maintain their fiscal position close the required level.

[22] The high budget and government deficit of Japan can lead to higher inflation and displacement of economic activity through fiscal policy.

6. The stage of political and economic integration

The first step towards the European Monetary Union were set in 1956, by the Treaty of Rome, which was established by the commission of European Communities the main propose of this treaty was to eliminate exchange rates fluctuation. After this, The Commission of European Communities introduced a framework 1969, which included procedures for generating more economic and monetary integration, by coordinating economic and monetary policy. According to this, the Werner plan was established in 1970, which included a three stage plan for creating a monetary union within one decade. This project was temporized by the collapse of the Bretton Woods and the oil crisis. The preparations were resumed in 1989, by the introduction of the Delors Report, this report included a three set plan for creating an economic and a monetary union. The first stage of this agreement was the liberalization of capital movements in 1990 and the introduction of the Maastricht Treaty in 1993. The second stage was the adoption of the Stability pact in 1997 and the establishment of the European Central Bank in 1998. The third stage was the establishment of the monetary union and Euro. Actually, the first steps toward the European Monetary Union were set far before the formation of the European Community. For instance, the International Pan-European Union was established in 1929[23]. After the Second World War the European authorities were seeking for more political and economic convergence for preventing new conflicts, which had encouraged the formation of the European Monetary Union. This is in contrast with East Asia where there is more desire for economic integration instead of political integration. Due to the Asian Crisis in 1997, the East Asian economies become more aware of the vulnerability of their currencies, a stable exchange rate among the East Asia could reduce the vulnerability of their currencies, according to this the East Asian countries are currently seeking for an adoption of a common currency.

Besides this, compared to the Euro zone, East Asia has built fewer institutions for stimulating monetary integration. The South Asian Central Banks Research and Training Centrum were founded in 1982, for contributing researches and trainings for central banks for improving their policy and operational activities. Furthermore, some of the ASEAN countries have designed agreements, during the mid-1990s for supporting mutual currencies. The Asian Monetary Fund

[23] Libertarianism, pro-Europeanism, Christianity and social responsibility were the four main conditions of this institution.

was founded in 1997, after the Asian financial crisis[24]. The most recent agreement is the Chiang Mai Initiative, which was established in May 2000, by the authorities of the ASEAN+3. This agreement includes a network of swap agreements, which can be applied in case of a crisis.

Bayoumi and Eichengreen (1999) highlighted that technical assistance and even networks of swap agreements could not mean that strong currencies would provide the general support, which is needed to prop up the weak currencies of neighboring countries. The adoption of a common currency is only desirable in East Asia, when the central governments of those countries accept to abandon their monetary and political sovereignty. This is desirable, through establishing a supranational institution, which coordinates the central governments and try to force them to act in the way, which is necessarily for creating a monetary union.

According to this, some researchers proposed to establish an institution in East Asia. Letiche (2000) suggested to found an East Asia Monetary Authority (EAMA), this institution could design framework for central banks to achieve greater financial integration. Bayoumi eral.(2000) suggested to establish an Asian Financial Institute (AFI), which could have tasks like coordinating financial stability, creating regional and monetary policy integration. These institutions are directly comparably with the ECB and the European commissions, the main tasks of the ECB are maintaining price stability, conducting monetary policy, supporting economic policies and contributing foreign exchange rates operation. The European Commission coordinates the governments of the Euro zone countries and supports them to act in a way, which encourages monetary unification. East Asian countries have difficulties with creating a credible institution, like the ECB and the European Commission, because establishing such an institution constitutes losing monetary independency and make the East Asian countries political and economic depended. In addition to this, Kwack and Ahn (2003) argued that East Asian countries are more likely to solve regional issues on a bilateral basis without a firm obligation, which also blocks the establishment of an institution.

[24] The Asian Monetary was founded, as an alternative to the IMF, because most of the East Asian authorities claimed that the support of the IMF was too weak and slow.

7. Conclusion

The feasibility of a successful currency area is evaluated on the basis of economic and political considerations.

The prospects for forming a monetary union on the basis of economic condition are considerably positive for the ASEAN+3. The interregional trade and market size are relatively high for these countries, which imply more benefits from a common currency. The openness ratios are significantly high this implies lower demand for using the exchange rates as an adjustment mechanism, which makes the adopting of a common currency more realizable. Moreover, approximately 80% of the trade can be accounted as industrial trade this indicates high degree of similarities in the composition of the economic sectors which is also favorable. By contrast, the degree of labor market flexibility in this region is relatively low, this may incur extra cost for adopting a common currency, because the labor mobility has to be preserve as an adjustment mechanism in case of an asymmetric disturbances.

The degree of symmetry in economic development and external disturbances are added to the optimum currency area conditions The differences in the stage of economic development are larger across the ASEAN+3 counties compared to the Euro zone, this could discourage the monetary integration, fiscal transfers from rich to poor countries could be preserve as a solution to this problem. The bilateral correlation of the GDP shocks are examined on the basis of the VAR-model and compared with the findings of previous studies. There is a high degree of symmetry in GDP-shocks observable for two subgroups, the first subgroup is Hong Kong, Japan, Korea, Philippines and the second subgroup is China and Indonesia. These results are not directly comparable with the results of previous studies, the previous researchers have found high degree of symmetry between the GDP disturbances for two or more sub groups within East Asia. Obviously, the findings of this research are also reflecting high degree of symmetry in GDP shocks between the countries of the main subgroups. This indicates that the degree of symmetry in external disturbances is increasing, which is a consequence of the increasing interregional trade.

Furthermore, most of the ASEAN+3 countries achieved to met the Convergence criteria, this implies that most of the countries are capable to lose their monetary indecency. Moreover, it

indicates the ability of those countries to maintain their fiscal position close the required level, which is necessary to discourage the use of an expansionary fiscal policy.

The degree of economic and political integration in East Asia is extremely low compared to the Euro zone. The ASEAN+3 authorities are not seeking for political commitment, which discourages the economic integration. Moreover, the ASEAN+3 countries are showing less intention for establishing a supranational institution like the EC or the ECB, which is crucial for those countries to adopt a common currency.

For achieving the requirements of adopting a common currency, the stimulation of the labor market flexibility, fiscal transfers from rich to poor countries, the establishment of a supranational institution like the ECB and the EC and more political collaboration is suggested for the ASEAN+3.

8. Appendix

Table 12: Foreign Labor Force 2000-2005

Year	2000	2001	2002	2003	2004	2005
Austria	8.82	9.27	9.39	9.72	10.22	10.38
Belgium	8.81	9.04	8.95	8.93	9.46	9.41
Luxembourg	56.88	59.48	59.47	59.80	59.84	62.34
Netherlands	3.73	3.73	3.61	3.83	3.61	3.46
Germany	8.41	8.53	8.55	8.70	8.62	8.82
Greece	3.67	4.22	5.56	5.80	6.43	6.70
Finland	1.60	1.74	1.77	1.83	1.93	2.02
France	5.93	6.03	5.99	5.58	5.66	5.31
Italy	3.55	3.54	3.46	6.09	…	…
Spain	2.53	3.36	4.43	5.03	5.33	8.08
Portugal	1.91	4.44	5.33	5.51	5.75	4.89

Notes: Foreign labor force in percentages of the labor force.
Source: IMD World Competitiveness Online

Table 13: Extent of the migration 1987-2007

Year	1987	1992	1997	2002	2007
Austria	3.57	6.64	1.24	4.39	3.83
Belgium	1.33	1.37	1.06	…	…
Netherlands	2.06	2.50	2.32	1.37	-0.37
Germany	..	6.67	2.77	2.43	1.82
Greece	3.08	9.03	5.55	2.80	2.69
Finland	0.63	1.69	0.76	1.28	1.51
France	1.04	1.45	0.33	2.35	…
Italy	0.04	2.01	2.09	3.87	2.63
Spain	2.53	3.36	4.43	5.03	5.33
Portugal	-3.16	-0.14	3.46	5.32	3.76

Notes: Net migration rate per 1000 inhabitants are the net number of migrants over a given period divided by the person- years lived by the population over that period. It is expressed as net number of migrants per 1,000 population.
Source: UNCTAD handbook of statistics online 2007

Table 14: Correlation GDP Deflators Euro zone 1998-2006

	AUS	BEL	NETH	LUX	GER	FIN	GRE	ITA	SP	PR
AUS		0.92	0.28	0.82	0.81	0.37	-0.20	0.50	0.75	0.31
BEL	0.92		0.14	0.80	0.63	0.27	-0.30	0.37	0.73	0.07
NET	0.28	0.14		0.07	0.03	0.47	0.15	0.60	0.19	0.81
LUX	0.83	0.80	0.07		0.64	0.42	-0.30	0.58	0.92	0.30
GER	0.81	0.63	0.03	0.64		0.37	-0.22	0.18	0.52	0.21
FIN	0.37	0.27	0.47	0.42	0.37		-0.07	0.28	0.23	0.44
GRE	-0.20	-0.30	0.15	-0.30	-0.22	-0.07		0.10	-0.38	0.24
IT	0.50	0.37	0.60	0.58	0.18	0.28	0.10		0.63	0.79
SP	0.75	0.73	0.19	0.92	0.52	0.23	-0.38	0.63		0.41
PR	0.31	0.07	0.81	0.30	0.21	0.44	0.24	0.79	0.41	

Notes: (a) these results are computed with EViews 6; (b) country notation is as follow: AUS for Austria, BEL for Belgium, NETH for Netherlands, LUX for Luxembourg, GER for Germany, FIN for Finland, GRE for Greece, ITA for Italy and PR for Portugal.
Source: IMD World Competitiveness Online

Table 15: Correlation GDP growth rates Euro zone 1998-2006

	AUS	BEL	NETH	GER	GE	FR	FIN	SP	IT	PR
AUS		0.50	0.77	0.86	0.40	0.90	0.60	0.55	0.24	0.93
BEL	0.50		0.46	0.10	0.94	0.22	0.30	0.90	0.55	0.44
NET	0.77	0.46		0.53	0.33	0.60	0.95	0.72	-0.17	0.85
GER	0.86	0.10	0.52		-0.05	0.96	0.39	0.15	0.21	0.86
Greece	0.40	0.94	0.33	-0.05		0.08	0.17	0.79	0.59	0.26
France	0.90	0.22	060	0.96	0.08		0.48	0.30	0.27	0.88
FIN	0.60	0.30	0.95	0.39	0.17	0.48		0.63	-0.34	0.73
SP	0.55	0.89	0.72	0.15	0.79	0.30	0.63		0.25	0.58
IT	0.24	0.55	-0.17	0.21	0.49	0.27	-0.34	0.25		0.13
PR	0.93	0.44	0.85	0.86	0.26	0.88	0.73	0.58	0.13	

Notes: (a) these results are computed with EViews 6; (b) country notation is as follow: AUS for Austria, BEL for Belgium, NETH for Netherlands, GER for Germany, GE for Greece, FR for France, FIN for Finland, SP for Spain, ITA for Italy and PR for Portugal.
Source: IMD World Competitiveness Online

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