

**ASEAN-5 MONETARY INTEGRATION: THE G-PPP  
AND GRAVITY MODELS ANALYSIS**

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# **ASEAN-5 MONETARY INTEGRATION: THE G-PPP AND GRAVITY MODELS ANALYSIS**

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## ABSTRACT

Economic integration has become an important issue for ASEAN countries. ASEAN Charter was formed in 2008 as the basis of the implementation of the ASEAN free trade area in 2015. This leads to the readiness of the ASEAN 5 to implement economic integration. According to the optimum currency area (OCA) theory, the economic integration does not ignore the similarity of monetary transmission mechanism and financial market performance. This thesis assesses the implementation of economic integration in ASEAN 5 especially viewed from the point of the monetary transmission mechanism and financial market performance. There are four objectives of this thesis, (1) evaluating the feasibility of ASEAN 5 countries to implement the optimum currency area using generalized purchasing power parity (G-PPP) model, (2) estimating the monetary transmission mechanism pattern on ASEAN 5 countries using monetary condition index (MCI), (3) estimating the financial market performance pattern on ASEAN 5 countries using the financial condition index (FCI), and (4) analyzing the effect of monetary transmission mechanism (MCI) and financial market performance (FCI) on ASEAN 5 economic integration using gravity model. Several techniques are employed in the analysis. Johansen cointegration techniques are used to estimate the G-PPP model. The results show that the G-PPP hold, which means that the OCA can be applied in ASEAN 5. Vector Error Correction Model (VECM) is employed to determine the weights of MCI and FCI. The MCI explores interest rate and exchange rate channels on monetary transmission. The result exhibits that Indonesia and Thailand have similar pattern of monetary transmission with the interest rate exerts stronger influence than the exchange rate channel. While in Malaysia, Philippines and Singapore the effect of exchange rate is more dominance than interest rate. The FCI explores money, exchange rate, credit, and stock market. The results show that Thailand, Indonesia and Malaysia have similar pattern of financial market condition with foreign exchange rate market exert stronger influence than the other markets. In the Philippines the money market is more dominance than other markets, while Singapore is dominated by credit and stock market. Static and dynamic panel data analyses are employed in the gravity model. The Gravity model explores the international trading relationships among countries. The core properties of gravity model are export, GDP, GDP/capita and inter countries distance. Dummy variables represent common language, land border, and augmented the indexed variables which consist of MCI and FCI. The results indicate that MCI and FCI could support the possibility of ASEAN 5 economic integration. The finding is in accordance with the theory that states if the OCA is adopted, then the monetary policy will be ineffective. Instead, financial condition will support economic integration.

## ABSTRAK

Integrasi ekonomi telah menjadi wacana yang penting bagi negara-negara ASEAN. Piagam ASEAN dibentuk pada tahun 2008 sebagai asas pelaksanaan kawasan perdagangan bebas ASEAN pada tahun 2015. Ini mengarah pada kesediaan ASEAN 5 untuk melaksanakan integrasi ekonomi. Menurut teori daerah mata wang optimum (OCA), integrasi ekonomi tidak mengabaikan persamaan mekanisme penghantaran kewangan dan prestasi pasaran kewangan. Tesis ini menilai pelaksanaan integrasi ekonomi di ASEAN 5 terutamanya melihat dari sudut mekanisme penghantaran kewangan dan prestasi pasaran kewangan. Ada empat tujuan tesis ini, iaitu (1) menilai kelayakan negara ASEAN 5 untuk melaksanakan kawasan mata wang yang optimum dengan menggunakan model pariti kuasa beli umum (G-PPP), (2) menganggarkan pola mekanisme penghantaran dasar kewangan di negara-negara ASEAN 5 menggunakan indeks keadaan kewangan (MCI), (3) menganggarkan pola prestasi pasaran kewangan pada negara ASEAN 5 menggunakan indeks keadaan kewangan (FCI), dan (4) menganalisis pengaruh mekanisme penghantaran kewangan (MCI) dan prestasi pasaran kewangan (FCI) integrasi ekonomi di negara ASEAN 5 menggunakan model graviti. Beberapa teknik ekonometri digunakan dalam kajian ini. Teknik kointegrasi Johansen digunakan untuk menjangka model G-PPP. Hasil kajian menunjukkan bahawa G-PPP, yang bererti bahawa OCA boleh diterapkan di ASEAN 5. Vektor Model Koreksi Kesalahan (VECM) yang digunakan untuk menganggarkan MCI dan FCI. MCI menghitung kadar bunga dan kadar pertukaran pada penghantaran kewangan. Hasil kajian menunjukkan bahawa Indonesia dan Thailand mempunyai pola penghantaran kewangan yang sama di mana kadar bunga lebih kuat daripada saluran nilai tukar. Sementara itu, di Malaysia, Filipina, dan Singapura pengaruh kadar pertukaran wang lebih kuat daripada kadar bunga. FCI menjelajah wang, kadar pertukaran, kredit, dan pasaran saham. Hasil kajian menunjukkan bahawa Thailand, Indonesia, dan Malaysia mempunyai corak keadaan pasaran kewangan yang sama di mana pasaran pertukaran mata wang asing lebih kuat berbanding pasaran lain. Di Filipina pasaran wang lebih kuat daripada pasaran lain, sedangkan di Singapura kredit dan saham menguasai pasaran. Analisis panel data statik dan dinamik digunakan pada Model Graviti. Model Graviti meneroka hubungan perdagangan antarabangsa di antara negara. Pembolehubah dari model graviti adalah eksport, GDP, GDP/kapita, dan jarak antara negara. Pembolehubah dummy terdiri daripada bahasa yang sama, sempadan tanah, dan menambah pembolehubah indeks yang terdiri daripada MCI dan FCI. Hasil kajian menunjukkan bahawa MCI dan FCI boleh menyokong kemungkinan integrasi ekonomi di negara ASEAN 5 (tetapi tanda MCI adalah negatif, dan positif untuk FCI). Penemuan ini sesuai dengan teori yang menyatakan bahawa jika OCA dipakai, maka dasar kewangan akan tidak berkesan. Sebaliknya, keadaan pasaran kewangan akan menyokong integrasi ekonomi.

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## TABLE OF CONTENTS

	PAGE
PERMISSION TO USE	i
ABSTRACT	ii
ABSTRAK	iii
ACKNOWLEDGMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURE	viii
LIST OF ABBREVIATION	ix
<b>CHAPTER ONE: INTRODUCTION</b>	
1.1 Background of Study.....	1
1.2 Statement of the Problem .....	7
1.3 Theoretical and Conceptual Framework.....	8
1.3.1 Theoretical Framework.....	9
1.3.2 Conceptual Framework.....	10
1.4 Objective of the Study.....	12
1.5 Research Questions.....	13
1.6. Research Hypotheses.....	13
1.7 Significance of the Study.....	16
1.8 Limitation of Study.....	17
1.9 Operational Definition of term.....	18
1.10 Organization of Thesis.....	21
<b>CHAPTER TWO: LITERATURE REVIEW</b>	
2.1 Introduction.....	22
2.2 Theoretical Background.....	23
2.2.1 Economic Integration Concept.....	23
2.2.2 The Theory Optimum Currency Area (OCA).....	26
2.2.3 Monetary Transmission Mechanism.....	33

2.2.4	Financial Market Performance.....	40
2.3	The Review of the Existing Studies of Economic Integration ASEAN 5 Countries.....	45
2.3.1	Shocking Studies.....	45
2.3.2	OCA Index.....	46
2.3.3	Trade Effect.....	47
2.3.4	G-PPP Analysis.....	50
2.4	Monetary and Financial Profile of ASEAN5 Countries .....	51
2.4.1	Indonesia.....	51
2.4.2	Malaysia.....	54
2.4.3	The Philippines.....	57
2.4.4	Singapore.....	59
2.4.5	Thailand.....	60
2.5	The Performance of Economic Integration in ASEAN.....	63

### **CHAPTER THREE: METHODOLOGY AND DATA**

3.1	Introduction	67
3.2	Vector Error Correction Model (VECM).....	67
3.2.1	Stationary of series.....	68
3.2.2	Lag Length Selection.....	69
3.2.3	Cointegration.....	70
3.2.4	VECM, Granger Causality and Block Exogeneity.....	70
3.2.5	Innovation Accounting Analysis.....	72
3.3	Panel Data.....	73
3.3.1	The Common Constants Method.....	75
3.3.2	The Fixed Effects Method.....	76
3.3.3	The Random Effect Method.....	76
3.3.4	Dynamic Panel Data.....	78
3.3.5	Panel Stationary of series.....	79
3.3.6	Panel Cointegration.....	81

3.4	Model Specification .....	84
3.4.1	Generalized Purchasing Power Parity (G-PPP).....	84
3.4.2	Monetary Condition Index (MCI) .....	89
3.4.3	Financial Condition Index (FCI) .....	95
3.4.4	Gravity Model.....	100
3.5	Data.....	105
3.5.1	G-PPP, MCI and FCI.....	105
3.5.2	Gravity Model.....	107

#### **CHAPTER FOUR: EMPIRICAL EVIDENCE**

4.1	Introduction	109
4.2	Generalized Purchasing Power Parity (G-PPP).....	110
4.2.1	Stationary of series.....	110
4.2.2	Lag Length Selection.....	110
4.2.3	Cointegration.....	111
4.3	Monetary Condition Index (MCI).....	112
4.3.1	Stationary of series.....	112
4.3.2	Lag Length Selection.....	113
4.3.3	Cointegration.....	113
4.3.4	VECM, Granger Causality and Block Exogeneity.....	113
4.3.5	VECM and MCI.....	115
4.3.6	Innovation Accounting Analysis.....	119
4.4	Financial Condition Index (FCI).....	121
4.4.1	Stationary of series.....	121
4.4.2	Lag Length Selection.....	121
4.4.3	Cointegration.....	122
4.4.4	VECM, Granger Causality and Block Exogeneity.....	122
4.4.5	VECM and FCI.....	127
4.4.6	Innovation Accounting Analysis.....	131

4.5	Gravity Model.....	134
4.5.1	Panel Stationary of series.....	134
4.5.2	Panel Cointegration.....	134
4.5.3	Static Gravity Model.....	135
4.5.4	Dynamic Gravity Model.....	136

## **CHAPTER FIVE: DISCUSSION AND CONCLUSION**

5.1	Discussion.....	140
5.1.1	Generalized Purchasing Power Parity (G-PPP).....	140
5.1.2	Monetary Condition Index (MCI).....	141
5.1.3	Financial Condition Index (FCI).....	142
5.1.4	Gravity Model.....	144
5.2	Conclusion.....	145
5.3	Recommendations.....	148

REFERENCES.....	150
A. APPENDIX : TABLES.....	158
B. APPENDIX : FIGURES.....	201
C. APPENDIX : DATA.....	228
VITA.....	296

## LIST OF TABLE

		PAGE
1.1	Selected Basic ASEAN Land Area and Population Indicators.....	158
1.2	Selected Basic ASEAN Economic indicator.....	158
2.1	The Degree of Five Types Economic Integration.....	159
2.2	New Taxonomy of Economic Integration Types.....	160
2.3	Selected Researches of ASEAN & East Asia Economic Integration	161
3.1	MCI's Countries of Many Institutions.....	163
3.2	Data Description and Sources.....	164
3.2	The Distance of Capital City on ASEAN-5 Countries.....	165
3.3	Land Border & Languages of ASEAN-5 Countries.....	165
3.4	Matrix of Land Border ASEAN-5 Countries.....	167
3.5	Matrix of Common Language ASEAN-5 Countries.....	167
4.1	Summary of Unit Root Test for ASEAN REER.....	168
4.2	Summary of Lag Length Selection of REER ASEAN5.....	169
4.3	Summary of Johansen's Cointegration REER for ASEAN5.....	169
4.4	Summary of Unit Root ADF MCI.....	170
4.5.	Summary of Unit Root PP MCI.....	171
4.6	Summary of Lag Length Selection MCI.....	172
4.7	Summary of Johansen's Cointegration MCI .....	173
4.8	Summary of Granger Causality and ECT MCI.....	174
4.9	Summary of Block Exogeneity MCI.....	175
4.10	Summary of VECM, Granger Causality, Block Exogeneity of MCI	176
4.11	Comparison of MCI Weights.....	177
4.12	Variance Decomposition of DP MCI.....	178
4.13	Summary of Unit Root ADF FCI.....	179
4.14	Summary of Unit Root PP FCI.....	180
4.15	Summary of Lag Length Selection FCI.....	181
4.16	Summary of Johansen's Cointegration FCI .....	182
4.17	Summary of Granger Causality and ECT FCI.....	183

4.18	Summary of Block Exogeneity FCI.....	185
4.19	Summary of VECM, Granger Causality, Block Exogeneity of FCI	188
4.20	Comparison of FCI Weights.....	190
4.21	Variance Decomposition of DP FCI.....	191
4.22	Summary of Unit Root Test of Panel Data.....	192
4.23	Summary of Johansen Fisher Panel and Kao Residual Cointegration Test.....	193
4.24	The Gravity Static Panel Data Model (1988-1997).....	194
4.25	The Gravity Static Panel Data Model (1998-2007).....	195
4.26	The Gravity Dynamic Panel Data Model (1988-1997).....	196
4.27	The Gravity Dynamic Panel Data Model 1998-2007).....	197

## LIST OF FIGURE

	PAGE
1.1 Theoretical Framework	198
1.2 Conceptual Framework of G-PPP Model in ASEAN 5 Countries	199
1.3 Conceptual Framework of MCI Model in ASEAN 5 Countries	200
1.4 Conceptual Framework of FCI Model in ASEAN 5 Countries	201
1.5 Conceptual Framework of Gravity Model Augmented by MCI & FCI in ASEAN 5 Countries	202
2.1 Monetary Transmission Channels.....	203
4.1 MCI of Indonesia .....	204
4.2 MCI of Malaysia.....	204
4.3 MCI of Philippines.....	205
4.4 MCI of Singapore.....	205
4.5 MCI of Thailand.....	206
4.6 IRF MCI of Indonesia.....	207
4.7 IRF MCI of Malaysia.....	208
4.8 IRF MCI of Philippines .....	209
4.9 IRF MCI of Singapore.....	210
4.10 IRF MCI of Thailand .....	211
4.11 FCI of Indonesia .....	212
4.12 FCI of Malaysia.....	212
4.13 FCI of Philippines.....	213
4.14 FCI of Singapore.....	213
4.15 FCI of Thailand.....	214
4.16 IRF FCI of Indonesia.....	215
4.17 IRF FCI of Malaysia.....	216
4.18 IRF FCI of Philippines .....	217
4.19 IRF FCI of Singapore.....	218
4.20 IRF FCI of Thailand .....	219

## LIST OF ABBREVIATION

ADF	: Augmented Dickey Fuller
AIC	: Akaike Information Criterion
ASEAN	: Association of South East Asia Nations
BI	: Bank Indonesia
BNM	: Bank Negara Malaysia
BOT	: Bank of Thailand
CBP	: Central Bank of the Philippines
CIA	: Central Intelligent Agency
CPI	: Consumer Price Index
CU	: Currency Union
DOT	: Directory of Trade
ECB	: European Central Bank
EMU	: Economic and Monetary Union
EU	: European Union
FCI	: Financial Condition Index
FTA	: Free Trade Area
GATT	: General Agreement on Tariff and Trade
GDP	: Gross Domestic Product
GMM	: Generalized Method of Moment
G-PPP	: Generalized Purchasing Power Parity
GSP	: Generalize System of Preference
IFS	: International Financial Statistics
IMF	: International Monetary Fund
IPS	: Im, Pesaran and Shin
IRF	: Impulse Response Function
ITF	: Inflation Targeting Framework
LLC	: Levin, Lin and Chu
MAS	: Monetary Authority of Singapore
MCI	: Monetary Condition Index



NPL	: Non Performing Loan
OCA	: Optimum Currency Area
OLS	: Ordinary Least Square
PP	: Phillip Peron
PPP	: Purchasing Power Parity
PTA	: Preferential Tariff Agreement
REER	: Real Effective Exchange Rate
SC	: Schwarz Criteria
SECI	: Stock Exchange Composite Index
SVAR	: Structural Vector Autoregression
VAR	: Vector Autoregression
VDC	: Variance Decomposition
VECM	: Vector Error Correction Model
WTO	: World Trade Organization

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Background of the Study**

The Association of Southeast Asian Nations (ASEAN) is a regionally-based international organization with ten members. ASEAN was created in 1967 with five members: Thailand, Singapore, Malaysia, Indonesia and the Philippines. In addition to the five original members, Brunei joined in 1984, Vietnam in 1995, Lao PDR and Myanmar (Burma) in 1997 and Cambodia in 1999. In 2008 on the 40<sup>th</sup> anniversary, the ten ASEAN members signed a charter. The charter is a stronger agreement between member countries to cooperate. With the implementation of this charter, the cooperation between ASEAN countries, which was originally very loose, will become closer. The charter will be the basis of the implementation of ASEAN free trade in 2015.

The total combined population of all ten ASEAN countries is more than 500,000,000 people with an average per capita GDP of USD 1,150. As a large country, Indonesia has a population of about 210,000,000 people, the fourth largest in the world. Countries with a population of approximately 60-90,000,000 are Myanmar, the Philippines, Thailand and Vietnam. Malaysia and Cambodia are about 20-30,000,000 people. Meanwhile, the population of Singapore and Laos is about five million each, while Brunei is under one million inhabitants. The size of population of the member country is proportional to the area of the respective country.

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