UNIVERSITI PUTRA MALAYSIA

THE BUSINESS CYCLE SYNCHRONISATION IN EAST ASIA

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THE BUSINESS CYCLE SYNCHRONISATION IN EAST ASIA

By

LEE HOOI YEAN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

October 2007

UPM

Dedication

To the loving memory of my father

To my mother, for her love and undying dedication

To my husband, for his support and patience

To my son and daughter, who make life fun and meaningful

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

THE BUSINESS CYCLE SYNCHRONISATION IN EAST ASIA

By

LEE HOOI YEAN

October 2007

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Faculty : Economics and Management

This study examines the business cycle synchronisation in East Asia as satisfying one of the preconditions for forming an Optimum Currency Area (OCA). We extend the existing literature by improving the methodology of assessing the business cycle synchronisation in evaluating the suitability of a common currency area for East Asia employing the Bayesian State-Space Based model. This model allows us to decompose aggregate shocks into country-specific, regional and world common business cycles. The importance of studying all three different shocks in one model is that studying a subset of countries can lead one to believe that observed co-movement is particular to that subset of countries when it in fact is common to a much larger group of countries. Understanding the sources of international economic fluctuations is important for making policy decisions. For example, if a country exhibits a large value of the share accounted by the region common factor, then its business cycle movement is largely synchronised to the region, indicating that a regional common monetary policy is more effective to respond to the disturbances. As a benchmark of comparison, the business cycle synchronisation in the European Union (EU) and the North American countries

are also examined. The empirical results suggest that the cost of renouncing individual currencies to advance into a currency union in East Asia could be significant as the output variation explained by country-specific factors is significant. It is worth noting that while we do not find evidence of an East Asian cycle, no evidence of an EU cycle is found either. This study also examines the endogeneity of OCA criteria. Theoretically, the effect of increased trade integration (after the elimination of exchange fluctuations among the countries in the region) on the business cycle synchronisation is ambiguous. We assess the dynamic relationships between trade, finance, specialisation and business cycle synchronisation for East Asia using the Generalised Method of Moments (GMM) approach. The dynamic panel approach improves on previous efforts to examine the business cycle synchronisation – trade link using panel procedures, which control for the potential endogeneity of all explanatory variables. The overall effect of trade on business cycles synchronisation is found to be positive, implying that increased trade leads to more synchronised business cycles. As such, policy makers may have little to worry about the region being unsynchronised in their business cycles as the business cycles will become more synchronised after the monetary union is formed.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PENYELARASAN KITARAN PERNIAGAAN DI ASIA TIMUR

Oleh

LEE HOOI YEAN

October 2007

Pengerusi : Profesor Azali bin Mohamed, PhD

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Kajian ini meneliti penyelarasan kitaran perniagaan di Asia Timur sebagai memenuhi salah satu daripada prasyarat bagi pembentukan Kawasan Mata Wang Optimum (*Optimum Currency Area).* Kami menambah maklumat yang ada dengan memperbaiki kaedah menaksir bagi penyelarasan kitaran perniagaan untuk menilai kesesuaian kawasan mata wang bersama bagi Asia Timur dengan menggunakan *Bayesian State-Space Based* model. Model ini membolehkan kita menyelerai kejutan agregat ke kejutan tertentu di peringkat negara, kawasan dan global. Penelitian terhadap kumpulan negara pengganti dapat mendorong sesebuah negara untuk menerima bahawa pergerakan bersama yang dikaji adalah khusus untuk negara pengganti, yang sebenarnya sama berbanding dengan kumpulan negara yang lebih besar. Oleh itu, ia adalah penting untuk mengaji kesemua kejutan tersebut dalam satu model. Kefahaman sumber perubahan ekonomi antarabangsa adalah penting untuk membuat keputusan dasar. Contohnya, jikalau variasi output sesebuah negara adalah dipengaruhi oleh kejutan di kawasan Asia Timur, dasar monetari di peringkat kawasan Asia Timur akan lebih berkesan untuk mengatasi masalah makroekonomi. Sebagai penanda aras perbandingan, penyelarasan

kitaran perniagaan dalam Kesatuan Eropah (EU) dan Negara-negara Amerika Utara juga diteliti. Hasil empirik menunjukkan bahawa kos pelepasan mata wang individu yang dijadikan pendahuluan dalam kesatuan mata wang mungkin besar kerana majoriti variasi output di Asia Timur adalah dipengaruhi oleh faktor tertentu negara. Walaupun Asia Timur tidak memenuhi criteria OCA, ia perlu diingati bahawa EU juga tidak memenuhi criteria tersebut. Kajian ini juga meneliti endogeniti kriteria OCA. Secara teorinya, kesan integrasi perdagangan yang meningkat (selepas penyingkiran perubahan mata wang di kalangan negara-negara serantau) terhadap penyelarasan kitaran perniagaan, adalah tidak jelas. Kajian ini menaksir hubungan dinamik antara perdagangan, kewangan, dan pengkhususan dengan penyelarasan kitaran perniagaan bagi Asia Timur, menggunakan pendekatan Kaedah Momen Teram (*Generalised Method of Moments*). Pendekatan panel dinamik memperbaiki usaha terdahulu untuk meneliti penyelarasan kitaran perniagaan – hubungan perdagangan dengan menggunakan prosedur panel yang mengawal kemungkinan endogeniti bagi semua perubahan keterangan. Hasil kajian menunjukkan bahawa peningkatan perdagangan di Asia Timur akan menambahkan penyelarasan kitaran perniagaan. Ini menandakan bahawa perdagangan yang meningkat mendorong ke arah lebih kitaran perniagaan terselaras, pembuat dasar tidak perlu bimbang tentang kawasan yang tidak selaras dalam kitaran perniagaan mereka kerana kitaran perniagaan akan menjadi lebih selaras selepas kesatuan kewangan ditubuhkan.

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I certify that an Examination Committee met on 29 October 2007 to conduct the final examination of Lee Hooi Yean on her Doctor of Philosophy thesis entitled "Optimum Currency Areas in East Asia: Examination of Business Cycle Synchronisation" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) regulations in 1981. The Committee recommends that the candidates be awarded the degree of Doctor of Philosophy.

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

_____

LEE HOOI YEAN

Date: 21 November 2008

TABLE OF CONTENTS

		Page
DEDICATION		ii
ABSTRACT		iii
ABSTRAK		iv
ACKNOWLEDGEMENTS		v
APPROVAL		vi
DECLARATION		viii
LIST OF TABLES		xii
LIST OF FIGURES		xiv
LIST OF APPENDICES		
LIST OF ABBREVIATIONS/GLOSSARY OF TERMS		xix
CHAPTER		
1	**INTRODUCTION**	1
	1.1 Overview	1
	1.2 Brief History of Regionalism	8
	1.2.1 Regional Trading Agreements	9
	1.2.2 Past and Recent Failures of Regionalism in East Asia	11
	1.3 The East Asian Financial Crisis and Regional Cooperation	16
	1.4 Problem Statement	21
	1.5 Objectives of Study	29
	1.6 Significance of the Study	30
	1.7 Plan and Organisation of the Study	33
2	**LITERATURE REVIEW**	34
	2.1 Introduction	
	2.2 The Review of Optimal Currency Area (OCA) in Theory – The Traditional Approaches	34
	2.2.1 Mundellian Approach to OCA Theory	35
	2.2.2 McKinnon's Approach to OCA Theory	37
	2.3 The Literature Review of OCA Criteria	46
	2.3.1 Measurement of Business Cycle	46
	2.3.2 Symmetry of Business Cycle in OCA Context	53
	2.4 The New OCA Theory	67
	2.4.1 Krugman Specialisation Hypothesis	69
	2.4.2 The "Endogeneity of OCA" Hypothesis	72
	2.5 The Literature Review of the New OCA Theory	74
	2.6 Concluding Remarks	78

3	**METHODOLOGY**		80
	3.1	Introduction	80
	3.2	The Hypothesis	81
		3.2.1 Symmetry of Business Cycles	81
		3.2.2 Endogeneity of OCA	82
	3.3	Methodology-Symmetry of Business Cycles	85
		3.3.1 The Model Specification	85
		3.3.2 State-Space Model	87
		3.3.3 The Bayesian Estimation	94
		3.3.4 Bayesian Model with Autocorrelation	101
		3.3.5 The Posterior Simulators	111
		3.3.6 Bayesian Computation in the State-Space Model	121
		3.3.7 Markov Chain Monte Carlo (*MCMC*) Diagnostics	122
		3.3.8 Other Estimation Issues	127
	3.4	Methodology-Endogeneity of OCA	132
		3.4.1 The Model Specification	132
		3.4.2 The Measurement	133
		3.4.3 Potential Problems of Estimation	139
		3.4.4 The Generalised Method of Moments (GMM) Estimation	139
		3.4.5 Test for the Validity of the GMM Estimators	140
		3.4.6 Nonstationary Dynamic Panel and Panel Unit Root Tests	142
		3.4.7 System GMM	145
	3.5	The Source of Data	153
4	**EMPIRICAL RESULTS AND DISCUSSIONS**		155
	4.1	Introduction	155
	4.2	Symmetry of Business Cycles	156
		4.2.1 Markov Chain Monte Carlo (*MCMC*) Diagnostics	156
		4.2.2 Test for Heteroskedasticity	166
		4.2.3 Bayesian Computation in the State-Space Model	167
	4.3	Endogeneity of OCA	197
		4.3.1 Nonstationary Dynamic Panel and Panel Unit Root Tests	197
		4.3.2 Test for the Validity of the System GMM Instruments	200
		4.3.3 System GMM Estimation	202
	4.4	Concluding Remarks	211
5	**SUMMARY, CONCLUSION AND POLICY IMPLICATION**		214
	5.1	Introduction	214
	5.2	Summary	214
		5.2.1 Symmetry of Business Cycle	216
		5.2.2 Endogeneity of OCA	219
	5.3	Lessons from EMU	222
	5.4	Policy Implications	226
	5.5	Limitation of Study and Suggestions for Future Research	228
	5.6	Conclusions	231

REFERENCES/BIBLIOGRAPHY 234

LIST OF APPENDICES 251
APPENDIX A
APPENDIX B 252
APPENDIX C 263
APPENDIX D 267
APPENDIX E 271
APPENDIX F 275
APPENDIX G 279
APPENDIX H 286
APPENDIX I 293

BIODATA OF THE AUTHOR 300
LIST OF PUBLICATIONS

LIST OF TABLES

Table		Page
1.1	Milestones towards greater and deeper economic and financial integration in East Asia	7
1.2	FTAs involving East Asian countries	13
1.3	Trends of Intra-Regional Trade (Selected Years)	22
1.4	Trends of Intra-Regional Trade Intensity Index (Selected Years)	22
1.5	Volatility of Bilateral Exchange Rates in ASEAN5 Plus Three (1973-2002)	24
1.6	Average Volatility of Exchange Rates in ASEAN5 Plus Three (1973-2002)	25
2.1	Distribution of Auto Production	40
2.2	Selected Literature Review on the Study of Business Cycle Correlations in OCA Literature	63
4.1	Posterior Results for β_i	158
4.2	Posterior Results for σ_i^2	159
4.3	Posterior Results for ϕ_i	160
4.4	Geweke's CD for β_i, σ_i^2 and ϕ_i	162
4.5	Posterior Mean and 95% *HPDI* for β_i	163
4.6	Posterior Mean and 95% *HPDI* for σ_i^2	164
4.7	Posterior Mean and 95% *HPDI* for ϕ_i	165
4.8	Test for Heteroskedasticity	166
4.9	Variance Decomposition for East Asia	169

4.10	Presence of World, Regional and Country-Specific Factors during Major Events for East Asian Countries	192
4.11	Variance Decomposition for European Union	194
4.12	Variance Decomposition for North America	196
4.13	The Panel Unit Root Tests	199
4.14	System GMM Estimation	206
4.15	Comparative Study of the Endogeneity of OCA Criteria	209
A.1	Posterior Results for β_i (40,000 draws)	286
A.2	Posterior Results for σ_i^2 (40,000 draws)	287
A.3	Posterior Results for ϕ_i (40,000 draws)	288
A.4	Geweke's CD for β_i, σ_i^2 and ϕ_i (40,000 draws)	289
A.5	Posterior Mean and 95% *HPDI* for β_i (40,000 draws)	290
A.6	Posterior Mean and 95% *HPDI* for σ_i^2 (40,000 draws)	291
A.7	Posterior Mean and 95% *HPDI* for ϕ_i (40,000 draws)	292
A.8	Posterior Results for β_i (50,000 draws)	293
A.9	Posterior Results for σ_i^2 (50,000 draws)	294
A.10	Posterior Results for ϕ_i (50,000 draws)	295
A.11	Geweke's CD for β_i, σ_i^2 and ϕ_i (50,000 draws)	296
A.12	Posterior Mean and 95% *HPDI* for β_i (50,000 draws)	297
A.13	Posterior Mean and 95% *HPDI* for σ_i^2 (50,000 draws)	298
A.14	Posterior Mean and 95% *HPDI* for ϕ_i (50,000 draws)	299

LIST OF FIGURES

Figure		Page
2.1	Aggregate Demand and Supply in Nation *A* and Nation *B*	36
2.2	The European Commission View	41
2.3	The Krugman View	41
2.4	Effectiveness of Devaluation as a Function of Openness	44
2.5	The Cost of a Monetary Union and the Openness of a Country	45
2.6	Business Cycle Symmetry, Trade Integration and the Monetary Regime	68
2.7	The Effect of a Country Joining Monetary Union (The Krugman Specialisation Hypothesis)	70
2.8	The Effect of a Country Joining Monetary Union (The "Endogeneity of OCA" Hypothesis)	72
3.1	Summary of Dynamic Relationships between Trade, Finance, Specialisation and Business Cycle Synchronisation	84
4.1	The Median of Output Growth, World, Regional and Country-Specific Factor for China (1970-2000)	171
4.2	The Median of Output Growth, World, Regional and Country-Specific Factor for Indonesia (1970-2000)	174
4.3	The Median of Output Growth, World, Regional and Country-Specific Factor for Japan (1970-2000)	177
4.4	The Median of Output Growth, World, Regional and Country-Specific Factor for Korea (1970-2000)	178
4.5	The Median of Output Growth, World, Regional and Country-Specific Factor for Malaysia (1970-2000)	181
4.6	The Median of Output Growth, World, Regional and Country-Specific Factor for The Philippines (1970-2000)	185

4.7	The Median of Output Growth, World, Regional and Country-Specific Factor for Singapore (1970-2000)	187
4.8	The Median of Output Growth, World, Regional and Country-Specific Factor for Thailand (1970-2000)	190
4.9	Summary of Dynamic Relationships between Trade, Finance, Specialisation and Business Cycle Synchronisation	213
A.1	The Ricardian Model of International Trade	254
A.2	Capital Market Equilibrium (Open Goods but Closed Capital Markets)	260
A.3	Capital Market Equilibrium (Open Goods and Capital Markets)	262
A.4	HP-Filtered Real GDP for China	263
A.5	BP-Filtered Real GDP for China	263
A.6	HP-Filtered Real GDP for Indonesia	263
A.7	BP-Filtered Real GDP for Indonesia	263
A.8	HP-Filtered Real GDP for Japan	264
A.9	BP-Filtered Real GDP for Japan	264
A.10	HP-Filtered Real GDP for Korea	264
A.11	BP-Filtered Real GDP for Korea	264
A.12	HP-Filtered Real GDP for Malaysia	265
A.13	BP-Filtered Real GDP for Malaysia	265
A.14	HP-Filtered Real GDP for the Philippines	265
A.15	BP-Filtered Real GDP for Philippines	265
A.16	HP-Filtered Real GDP for Singapore	266
A.17	BP-Filtered Real GDP for Singapore	266
A.18	HP-Filtered Real GDP for Thailand	266
A.19	BP-Filtered Real GDP for Thailand	266
A.20	Bilateral Trade Intensity T^1 between China and East Asian Countries	267

A.21 Bilateral Trade Intensity T^1 between Indonesia and East Asian Countries 267

A.22 Bilateral Trade Intensity T^1 between Japan and East Asian Countries 268

A.23 Bilateral Trade Intensity T^1 between Korea and East Asian Countries 268

A.24 Bilateral Trade Intensity T^1 between Malaysia and East Asian Countries 269

A.25 Bilateral Trade Intensity T^1 between the Philippines and East Asian Countries 269

A.26 Bilateral Trade Intensity T^1 between Singapore and East Asian Countries 270

A.27 Bilateral Trade Intensity T^1 between Thailand and East Asian Countries 270

A.28 Bilateral Trade Intensity T^2 between China and East Asian Countries 271

A.29 Bilateral Trade Intensity T^2 between Indonesia and East Asian Countries 271

A.30 Bilateral Trade Intensity T^2 between Japan and East Asian Countries 272

A.31 Bilateral Trade Intensity T^2 between Korea and East Asian Countries 272

A.32 Bilateral Trade Intensity T^2 between Malaysia and East Asian Countries 273

A.33 Bilateral Trade Intensity T^2 between the Philippines and East Asian Countries 273

A.34 Bilateral Trade Intensity T^2 between Singapore and East Asian Countries 274

A.35 Bilateral Trade Intensity T^2 between Thailand and East Asian Countries 274

A.36 Similarity of Production Structures and Specialisation (*S*) between China and East Asian Countries 275

A.37 Similarity of Production Structures and Specialisation (*S*) between Indonesia and East Asian Countries 275

A.38 Similarity of Production Structures and Specialisation (*S*) between Japan and East Asian Countries 276

A.39 Similarity of Production Structures and Specialisation (*S*) between Korea and East Asian Countries 276

A.40 Similarity of Production Structures and Specialisation (*S*) between Malaysia and East Asian Countries 277

A.41 Similarity of Production Structures and Specialisation (*S*) between the Philippines and East Asian Countries 277

A.42 Similarity of Production Structures and Specialisation (*S*) between Singapore and East Asian Countries 278

A.43 Similarity of Production Structures and Specialisation (*S*) between Thailand and East Asian Countries 278

A.44 Financial Integration Index (*F*) between China and Indonesia 279

A.45 Financial Integration Index (*F*) between China and Japan 279

A.46 Financial Integration Index (*F*) between China and Korea 279

A.47 Financial Integration Index (*F*) between China and Malaysia 279

A.48 Financial Integration Index (*F*) between China and the Philippines 280

A.49 Financial Integration Index (*F*) between China and Singapore 280

A.50 Financial Integration Index (*F*) between China and Thailand 280

A.51 Financial Integration Index (*F*) between Indonesia and Japan 280

A.52 Financial Integration Index (*F*) between Indonesia and Korea 281

A.53 Financial Integration Index (*F*) between Indonesia and Malaysia 281

A.54 Financial Integration Index (*F*) between Indonesia and the Philippines 281

A.55 Financial Integration Index (*F*) between Indonesia and Singapore 281

A.56 Financial Integration Index (*F*) between Indonesia and Thailand 282

A.57 Financial Integration Index (*F*) between Japan and Korea 282

A.58 Financial Integration Index (*F*) between Japan and Malaysia 282

A.59 Financial Integration Index (*F*) between Japan and the Philippines 282

A.60 Financial Integration Index (*F*) between Japan and Singapore 283

A.61 Financial Integration Index (*F*) between Japan and Thailand 283

A.62 Financial Integration Index (*F*) between Korea and Malaysia 283

A.63 Financial Integration Index (*F*) between Korea and the Philippines 283

A.64 Financial Integration Index (*F*) between Korea and Singapore 284

A.65 Financial Integration Index (*F*) between Korea and Thailand 284

A.66 Financial Integration Index (*F*) between Malaysia and the Philippines 284

A.67 Financial Integration Index (*F*) between Malaysia and Singapore 284

A.68 Financial Integration Index (*F*) between Malaysia and Thailand 285

A.69 Financial Integration Index (*F*) between the Philippines and Singapore 285

A.70 Financial Integration Index (*F*) between the Philippines and Thailand 285

A.71 Financial Integration Index (*F*) between the Singapore and Thailand 285

LIST OF APPENDICES

Appendix A	251
Appendix B	252
Appendix C	263
Appendix D	267
Appendix E	271
Appendix F	275
Appendix G	279
Appendix H	286
Appendix I	293

LIST OF ABBREVIATIONS/GLOSSARY OF TERMS

ABF	Asian Bond Fund
ABF2	Asian Bond Fund 2
ABMI	Asian Bond Markets Initiative
ACU	Asian Currency Unit
AD	Aggregate Demand
ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
ALADI	Latin American Integration Association
AMF	Asian Monetary Fund
APEC	Asia-Pacific Economic Cooperation
APT	ASEAN Plus Three (10 members of ASEAN plus China, Japan and Korea)
AR	Autoregressive
ARCH	Autoregressive Conditionally Heteroscedastic
AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
ARMA	Autoregressive Moving-Average
AS	Aggregate Supply
ASA	ASEAN Swap Arrangement
ASEAN	Association of Southeast Asian Nations
ASEAN5	Founding members of ASEAN (Indonesia, Malaysia, Philippines, Singapore and Thailand)
BACC	Bayesian Analysis, Computation and Communication
BP	Band-Pass

BSA	Bilateral Swap Arrangements
BUGS	Bayesian Inference Using Gibbs Sampling
CACM	Central American Common Market
CD	Convergence Diagnostic
CEAO	Communaute Economique de l'Afrique Occidentale
CID	Covered Interest Differential
CMI	Chiang Mai Initiative
COMESA	Common Market of Eastern and Southern Africa
CPI	Consumer Price Index
CUSFTA	Canadian-US Free Trade Area
EAEC	East Asian Economic Caucus
EAEG	East Asian Economic Group
EAS	East Asian Summit
EC	European Commission
EEC	European Economic Community
EFTA	European Free Trade Area
EMEAP	Executives' Meeting of East-Asia-Pacific Central Banks
EMS	European Monetary System
EMU	The European Economic and Monetary Union
ERM	Exchange Rate Mechanism
ERPD	Economic Review and Policy Dialogue
EU	European Union
FDI	Foreign Direct Investment