



Faculty of Economics and Business

Current Account Imbalances and Indebtedness in Asia Countries

Soo Xin Lin

**Doctor of Philosophy
2023**

Current Account Imbalances and Indebtedness in Asia Countries

Soo Xin Lin

A thesis submitted

In fulfilment of the requirements for the degree of Doctor of Philosophy

(International Economics)

Faculty of Economics and Business
UNIVERSITI MALAYSIA SARAWAK

2023

DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature	
Name	Soo Xin Lin
Matric No.	20010019
Faculty	Faculty of Economics and Business
Institution	Universiti Malaysia Sarawak
Date	19 October 2023

ACKNOWLEDGEMENT

I would like to take this opportunity to deliver my thankfulness to those who have contributed to my study. First, I would like to express my gratitude to my supervisor, Dr. Jerome Kueh Swee Hui. He is a caring and responsible person. He is willing to sacrifice his precious time to teach, guide, and give encouragement. He has a lot of passion for guiding and providing advice to me throughout the whole process of completing this research study. I felt thankful for his guidance and advice. Besides, appreciation was also given to my co-supervisor Professor Dr. Rossazana Bt. Ab Rahim and Dr. Josephine Yau Tan Hwang. They provide valuable opinions and comments on my thesis writing.

Furthermore, the support and encouragement from my family and friends also inspire me. When I face difficulties and confusion, they are willing to hear and enlighten me. They bring joy that makes me feel happy and relaxed once I feel stressed about continuing the progress of this research study. I enjoy their endless love. Apart from that, I would like to thank Unit Pinjaman Pengajian Tinggi Kerajaan Negeri Perak for providing a full study loan. This study loan aid in covering my whole study and the living expenses. Lastly, I would like to thank all the lovely and helpful people in my study life.

Sincerely

Thank you very much!

ABSTRACT

The primary focus of international economics is external imbalances which act as a powerful impetus for historical changes in the economy. This study's objectives are to analyse the determinants of current account imbalance as well as to examine the relationship between current account balance and indebtedness. This study is on 48 Asia countries and spans a sampling period from 1990 to 2020. The fiscal balance, public debt, household debt, age dependency ratios for old and young, information and communications technology (ICT), real GDP, and real effective exchange rate are independent variables while the current account balance is a dependent variable. The primary methodologies are dynamic GMM panel estimation and panel threshold splitting model estimation. The empirical result indicates that the determinants of current account imbalance are the fiscal balance, public debt, age dependency ratio for old, and real GDP. However, the age dependency ratio for young, ICT, and real effective exchange rate are insignificant to the current account balance. Besides, debt levels have a positive and strong association with both the fiscal balance and current account balance. Next, the current account balance and the fiscal balance have a positive and significant association under both regimes when the threshold level of public debt-to-GDP is at 62.72%. Besides, the threshold level of household debt-to-GDP is achieved at 52.22%. Yet, both balances perform a negative relationship which is a twin divergence situation below the household debt threshold level and demonstrates positive significant nexus above the household debt threshold level. In the policy recommendation, fiscal consolidation is proposed for the Asia

countries. The application of fiscal rule can help to slow down deficit phenomenon and act as a stabilization mechanism in moderating the current account position of Asia countries. Moreover, the managing of the optimal debt threshold position of a country by policymakers is also crucial to overcome the economic uncertainties for sustaining economic growth in the Asia region.

Keywords: Current account imbalance, fiscal balance, public debt, household debt, threshold debt level

Ketidakseimbangan Akaun Semasa dan Keberhutangan di Negara-negara Asia

ABSTRAK

Tumpuan utama ekonomi antarabangsa ialah ketidakseimbangan luaran yang bertindak sebagai pendorong kuat untuk perubahan sejarah dalam ekonomi. Objektif kajian ini adalah untuk menganalisis faktor penentu ketidakseimbangan akaun semasa serta mengkaji hubungan antara baki akaun semasa dan keberhutangan. Kajian ini adalah ke atas 48 negara Asia dan merangkumi tempoh persampelan dari tahun 1990 hingga 2020. Imbangan fiskal, hutang awam, hutang isi rumah, nisbah kebergantungan umur untuk golongan tua dan muda, teknologi maklumat dan komunikasi, Keluaran Dalam Negara Kasar (KDNK) sebenar, dan kadar pertukaran berkesan sebenar adalah pembolehubah bebas manakala imbangan akaun semasa adalah pembolehubah bersedia. Metodologi utama ialah anggaran panel GMM dinamik dan model penganggaran pemisahan ambang panel. Keputusan empirikal menunjukkan bahawa penentu yang ketidakseimbangan akaun semasa ialah imbangan fiskal, hutang awam, nisbah kebergantungan umur untuk golongan tua, dan KDNK sebenar. Walau bagaimanapun, nisbah kebergantungan umur untuk golongan muda, teknologi maklumat dan komunikasi, dan kadar pertukaran berkesan sebenar adalah tidak penting kepada imbangan akaun semasa. Selain itu, paras hutang mempunyai perkaitan yang positif dan kukuh dengan kedua-dua imbangan fiskal dan imbangan akaun semasa. Seterusnya, imbangan akaun semasa dan imbangan fiskal mempunyai perkaitan yang positif dan signifikan di bawah kedua-dua rejim apabila tahap ambang hutang awam kepada KDNK adalah pada 62.72%. Di samping itu, paras ambang

hutang isi rumah kepada KDNK dicapai pada 52.22%. Namun, kedua-dua imbalan melakukan hubungan negatif yang merupakan situasi perbezaan berkembar di bawah paras ambang hutang isi rumah dan menunjukkan perhubungan signifikan yang positif melebihi paras ambang isi rumah. Dalam pengesyoran dasar, penyatuan fiskal dicadangkan kepada negara-negara Asia. Penggunaan peraturan fiskal boleh membantu memperlahankan fenomena defisit dan bertindak sebagai mekanisme penstabilan dalam menyederhanakan kedudukan akaun semasa negara-negara Asia. Selanjutnya, pengurusan kedudukan ambang hutang optimum sesebuah negara oleh penggubal dasar juga penting untuk mengatasi ketidaktentuan ekonomi unntuk mengekalkan pertumbuhan ekonomi di rantau Asia.

Kata kunci: *Ketidakeimbangan akaun semasa, imbalan fiskal, hutang awam, hutang isi rumah, tahap hutang ambang*

TABLE OF CONTENTS

	Page
DECLARATION	i
ACKNOWLEDGEMENT	ii
ABSTRACT	iii
<i>ABSTRAK</i>	v
TABLE OF CONTENTS	vii
LIST OF TABLES	xii
LIST OF FIGURES	xvi
LIST OF ABBREVIATIONS	xviii
CHAPTER 1: INTRODUCTION	1
1.1 Introduction	1
1.2 Background of the Study	5
1.3 Problem Statement	30
1.4 Objectives of the Study	34
1.4.1 General Objective	34
1.4.2 Specific Objectives	34

1.5	Significance of the Study	35
1.6	Scope of the Study	41
1.7	Organization of the Study	43
	CHAPTER 2: LITERATURE REVIEW	45
2.1	Introduction	45
2.2	Theoretical Approaches	47
2.2.1	Keynesian Theory of Deficits	47
2.2.2	Ricardian Equivalence	49
2.2.3	Debt and Deficits – Vicious Cycle	50
2.2.4	Life Cycle Hypothesis	51
2.3	Literature Review on Current Account Imbalance and Independent Variables	53
2.3.1	Fiscal Balance	53
2.3.2	Debt	60
2.3.3	Age Dependency Ratios for the Old and Young	62
2.3.4	Real GDP	65
2.3.5	Real Effective Exchange Rate	67
2.4	Literature Review on Trade and ICT	70
2.5	Literature Review on Twin Deficits and Debt	74

2.6	Literature Review on Economic Growth and Debt	78
2.7	Summary of Literature Review	82
2.8	A Remark on Research Gaps	113
CHAPTER 3: DATA AND METHODOLOGY		115
3.1	Introduction	115
3.2	Empirical Model	116
3.3	Data Description	124
3.3.1	Current Account Balance (CAB)	126
3.3.2	Fiscal Balance (FB)	127
3.3.3	Public Debt (PD)	128
3.3.4	Household Debt (HD)	130
3.3.5	Age Dependency Ratios for the Old and Young (ADRO/ADRY)	131
3.3.6	Information and Communications Technology (ICT)	132
3.3.7	Real GDP (RGDP)	133
3.3.8	Real Effective Exchange Rate (REER)	134
3.4	Methodology	134
3.4.1	Descriptive Statistics	136
3.4.2	Principle Component Analysis	138

3.4.3	Dynamic Generalized Method of Moments (GMM) Panel Estimation	141
3.4.4	Robustness Checks for GMM Panel Estimation	146
3.4.4.1	Dynamic GMM Panel Estimation	146
3.4.4.2	Pooled Mean Group (PMG) Estimation	147
3.4.4.3	Dynamic OLS (DOLS) Estimation	151
3.4.5	Panel Threshold Estimation	155
3.4.6	Robustness Check for Threshold Estimation	161
3.4.6.1	Panel Quantile Regression	161
3.5	Concluding Remarks	166
CHAPTER 4: EMPIRICAL FINDINGS AND RESULTS ANALYSIS		168
4.1	Introduction	168
4.2	Descriptive Statistics	169
4.3	Principle Component Analysis (PCA)	187
4.4	Dynamic Generalized Method of Moments (GMM) Panel Estimation	190
4.5	Robustness Checks for GMM Panel Estimation	196
4.5.1	Dynamic GMM Estimation	196
4.5.2	Pooled Mean Group (PMG) Estimation	199
4.5.3	Dynamic OLS (DOLS) Estimation	207

4.6	Panel Threshold Estimation	209
4.7	Robustness Check for Panel Threshold Estimation	227
	4.7.1 Panel Quantile Regression Analysis	227
4.8	Concluding Remarks	239
	CHAPTER 5: CONCLUSION AND RECOMMENDATIONS	244
5.1	Introduction	244
5.2	Summary and Conclusion	245
5.3	Policies and Recommendations	254
5.4	Limitations of the Study and the Future of the Study	258
	REFERENCES	260
	APPENDICES	294

LIST OF TABLES

		Page
Table 1.1	World Current Account Balance (CAB) by Group of Economies	9
Table 1.2	Current Account Balance (CAB) with Largest Surplus in World Economies	10
Table 1.3	Current Account Balance (CAB) with Largest Deficit in World Economies	11
Table 1.4	Current Accounts of Leading Exporters (Goods and Services) by Developing Economies in Asia and Oceania in 2021	12
Table 1.5	Top 10 World Countries with Highest Fiscal Deficit in 2022	16
Table 1.6	Asia Countries with Largest Government Budget Deficit in 2022	16
Table 1.7	Asia Countries with Highest Current Account Surplus in 2022	21
Table 1.8	Asia Countries with Highest Current Account Deficit in 2022	22
Table 1.9	Top 10 World Most Government Indebtedness Economy in 2022	24
Table 1.10	Top 10 World Least Government Indebtedness Economy in 2022	25
Table 1.11	Top 5 Largest Holding Nations of U.S. Government Debt as of January 2023	26

Table 1.12	Asia Countries with Highest Government Indebtedness in 2022	27
Table 1.13	Asia Countries with Lowest Government Indebtedness in 2022	28
Table 2.1	Summaries of Literature Reviews on Current Account Balance and Fiscal Balance	83
Table 2.2	Summaries of Literature Reviews on Current Account Balance and Debt	92
Table 2.3	Summaries of Literature Reviews on Current Account Balance and Age Dependency Ratios	94
Table 2.4	Summaries of Literature Reviews on Current Account Balance and Real GDP	96
Table 2.5	Summaries of Literature Reviews on Current Account Balance and REER	99
Table 2.6	Summaries of Literature Reviews on Trade and ICT	102
Table 2.7	Summaries of Literature Reviews on Twin Deficits and Debt	106
Table 2.8	Summaries of Literature Reviews on Economic Growth and Debt	108
Table 2.9	Empirical Papers on Asia Countries/Region	112
Table 3.1	Summaries of Expected Results	126
Table 4.1	Mean and Standard Deviation of Current Account Balance	170

Table 4.2	Mean and Standard Deviation of Fiscal Balance	171
Table 4.3	Mean and Standard Deviation of Public Debt	174
Table 4.4	Mean and Standard Deviation of Household Debt	176
Table 4.5	Mean and Standard Deviation of Age Dependency Ratio for Old	178
Table 4.6	Mean and Standard Deviation of Age Dependency Ratio for Young	180
Table 4.7	Mean and Standard Deviation of ICT	182
Table 4.8	Mean and Standard Deviation of Real GDP	184
Table 4.9	Mean and Standard Deviation of REER	185
Table 4.10	Eigenvalues Analysis in Principle Component Analysis (PCA)	188
Table 4.11	Eigenvectors Analysis of Principle Components	189
Table 4.12	Dynamic GMM Panel Estimations	195
Table 4.13	Robustness Check – Dynamic GMM Estimations	198
Table 4.14	Correlation Matrix	200
Table 4.15	Levin, Lin, and Chu (LLC) Panel Unit Root Test	202
Table 4.16	Pedroni and Kao Panel Cointegration Tests (Model 1)	203
Table 4.17	Robustness Check - PMG Estimations and Hausman Test	206
Table 4.18	Robustness Check - DOLS Estimations	208
Table 4.19	Single Threshold Model Estimator and Threshold Effect Tests	211

Table 4.20	Panel Threshold Estimation – Public Debt as Threshold Indicator	213
Table 4.21	Panel Threshold Estimation – Household Debt as Threshold Indicator	217
Table 4.22	Mean Values of Public Debt and Household Debt with Threshold Debt Levels of 48 Asia Countries	221
Table 4.23	Quantile Regression Median Analysis – Public Debt as Debt Indicator	230
Table 4.24	Quantile Process Estimation – Public Debt as Debt Indicator	232
Table 4.25	Tests of Quantile Regression Coefficients – Public Debt as Debt Indicator	233
Table 4.26	Quantile Regression Median Analysis – Household Debt as Debt Indicator	234
Table 4.27	Quantile Process Estimation – Household Debt as Debt Indicator	236
Table 4.28	Tests of Quantile Regression Coefficients – Household Debt as Debt Indicator	238
Table 5.1	Summaries of Estimations Results	253

LIST OF FIGURES

	Page	
Figure 1.1	World Current Account Balance by Regions from 1990 to 2021	8
Figure 1.2	Asia Current Account Balance by Regions from 1990 to 2021	19
Figure 1.3	Government Debt of 48 Asia Countries in 2022	29
Figure 2.1	Debt and Deficit: A Vicious Cycle	51
Figure 2.2	Life-cycle Hypothesis	53
Figure 4.1	Scree Plot of Eigenvalues After PCA	188
Figure 4.2	Public Debt Threshold Level Diagnostic Result	212
Figure 4.3	Household Debt Threshold Level Diagnostic Result	216
Figure 4.4	Plot of Public Debt Threshold Level and Mean Public Debt Values of 48 Asia Countries from 1990 to 2020	225
Figure 4.5	Plot of Household Debt Threshold Level and Mean Household Debts Values of 48 Asia Countries from 1990 to 2020	226
Figure 4.6	Coefficients of Fiscal Balance at Different Quantiles in Relationship to Current Account Balance (Model 3)	231

Figure 4.7 Coefficients of Fiscal Balance at Different Quantiles in Relationship
to Current Account Balance (Model 4)

237

LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ADRO	Age dependency ratio for old
ADRY	Age dependency ratio for young
APEC	Asia-Pacific Economic Cooperation
AR	Autoregressive
ARDL	Autoregressive distributed lag
ASEAN	Association of Southeast Asian Nations
BOP	Balance of payments
BRICS	Brazil, Russia, India, China, and South Africa
CAB	Current account balance
CEE	Central and Eastern Europe
CEEC	Central and Eastern Europe Countries
CEIC	Canada Employment Insurance Commission
CIS	The Commonwealth of Independent States
COVID-19	Coronavirus disease 2019
CPI	Consumer price index

DOLS	Dynamic ordinary least squares
DSGE	Dynamic stochastic general equilibrium
DTC	Debt trap country
ECM	Error correction model
EU	European Union
FB	Fiscal balance
FDI	Foreign direct investment
FGLS	Feasible generalized least squares
FMOLS	Fully modified ordinary least squares
GDP	Gross domestic product
GMM	Generalized method of moments
HD	Household debt
ICT	Information and communications technology
IDI	ICT development index
IMF	International Monetary Fund
IV	Instrument variable
IVQR	Instrumental variable quantile regression
JJ	Johansen and Juselius

LLC	Levin, Lin, and Chu
M	Import
MENA	Middle East and North Africa
MG	Mean group
NDTC	Non-debt trap country
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary least squares
OLS-PCSE	Ordinary least squares - panel corrected standard error
PCA	Principle component analysis
PD	Public debt
PLS	Partial least squares
PMG	Pooled mean group
QR	Quantile regression
QRPD	Quantile regression estimator for panel data
REER	Real effective exchange rate
RGDP	Real gross domestic product
RIR	Real interest rate
SEE	South-East European

SUR	Seemingly unrelated regression
SVAR	Structural Vector Autoregressions
U.A.E.	United Arab Emirates
U.K.	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
U.S.	United States
USD	U.S. Dollar
VAR	Vector autoregression
VECM	Vector error correction model
WDI	World Development Indicators
WEO	World Economic Outlook
X	Export
2SLS	Two-stage least squares

CHAPTER 1

INTRODUCTION

1.1 Introduction

In this era of globalisation, the fusion of financial and commercial activities will provide advantages like effective resource allocation for saving and investing. In the meantime, this integration will result in global current account imbalances (Altuzarra et al., 2010). Global imbalances are circumstances where certain countries have more assets than others. Practically, huge deficits and surpluses in the global economy's current account positions are also referred to as global imbalances (Sadiku et al., 2015). In theory, when the current account reaches equilibrium, its value is zero, and the inflow and outflow of capital cancel each other out, there is an external balance. In contrast, an imbalanced current account has deficits that have persisted for a predetermined amount of time.

The primary focus of international economics is external imbalances, which act as a powerful impetus for historical changes in the economy (Bracke et al., 2010). During the time of interwar, the growing imbalances led to the collapse of international trading and the currency arrangement, which later led to the Second World War. In the 1970s, the Bretton Woods system folded up because there was pressure across the external imbalances that resulted in a prime overhaul of the international monetary system. In 1980s,