MONEY AND THE EXCHANGE RATE UNDER MONETARY STABILISATION: THE CASE OF INDONESIA, 1971-1992

A Dissertation Submitted in Partial Fulfilment of the Requirements of the Degree of Master of Economics of the University of New England

by

TJETJEP DJUWARSA

Faculty of Economics, Business and Law
University of New England
Armidale, NSW 2351
AUSTRALIA

June, 1995

ABSTRACT

The general objective of this study was to assess empirically the causal links and transmission processes between key macroeconomic variables described by a simple open monetary model, particularly, to see the movements of foreign reserves, exchange rates, prices, real output and government revenue and expenditure for Indonesia from 1971 to 1992. A monetary model of an open economy based on the monetary approach to the balance of payments has been used with the starting point of the disequilibrium condition in the money market.

The model is estimated by 2SLS method. The results indicate that an increase in real output and a decrease in domestic credit can accumulate foreign reserves. A contractive fiscal budget by raising foreign borrowing to meet its balanced budget spirit has been squeezing domestic credit creation and therefore indirectly affects foreign reserves accumulation. Accumulation of foreign reserves has reflected the central bank's intervention in the foreign exchange market, and it significantly depreciates nominal exchange rates. The role of price differential on the nominal exchange rate, however, is outweigh the central bank intervention. There is no conflict found between nominal exchange rate depreciation and the price level. This led to an increase in the country's external competitiveness causing an increase in real output. The later has been significant in causing an increase in government domestic revenues. The role of government domestic revenues, however, is not significant in covering the domestic component of the budget deficit and therefore it has no role in reducing domestic credit creation.

On the basis of these findings, some policy implications are noted and directions for further study are offered. These policy implications include more foreign borrowing, to influence the labor and goods markets in order to stabilise price expectations to increase productivity and to improve external competitiveness. A policy implication to maintain the inflation differential to keep external competitiveness suggests the needs of adopting a flexible exchange rate.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my supervisors, Dr. D.L. Schulze of Department of Economics and Dr. Duangkamon Chotikapanich of Department of Econometrics. To Dr. D.L. Schulze for his friendly, patient, encouragement and comprehensive guidance. I also thank him especially for his critical and invaluable comments throughout the chapters. To Dr. Duangkamon Chotikapanich for her extensive help in estimating and analysing the models as well as her patient and her supervision. However, any errors, omissions, and inaccuracies which occur in this dissertation, are my own responsibility.

Appreciation is also due to various staff and graduate students in the Department of Economics for their comments and encouragement before and after the graduate student workshop. I am greatly thankful to Mr. Harry B. Nugroho, Mr. Agus Setiabudi for providing me valuable data and to Mr. Muliaman Hadad for providing me some valuable articles. Special thanks are also due to Mr. M. Nadra Hosen for careful job of typing, to Mr. Joko Sujono, Mr. Sigit Sudjalmo Mr. Arief Daryanto and Mr. Dahlanuddin for their help with computer skills.

I am also grateful to the Australian International Development Assistance Bureau (AIDAB) which has enabled me to study in Australia.

Finally, I wish to thank all those - especially Upi and Diki - who have made my stay in Armidale an enjoyable and memorable one.

June, 1995
TJETJEP DJUWARSA

TABLE OF CONTENTS

		Page
	DECLARATION	i
	ABSTRACT	ii
	ACKNOWLEDGMENT	iii
	TABLE OF CONTENTS	iv
	LIST OF TABLES	v
	LIST OF FIGURES	vi
	LIST OF APPENDICES	vii
I	INTRODUCTION	
	1.1. Background	1
	1.2. Research Problem	3
	1.3. Objective of the Study	5
	1.4. General Theoretical Framework	6
	1.5. Outline of Remaining Chapters	6
II.	AN OVERVIEW OF MACROECONOMIC PERFORMANCES, 1971-1992	
	2.1. Gross Domestic Product	7
	2.2. Money Supply	13
	2.3. Velocities of Money	16
	2.4. Sources of Change in M2	18
	2.5. Government Budget	23
	2.6. Economic Stability	29
	2.6.1. Inflation and Exchange Rates	29
	2.6.2. Current Account	34
III.	THE MONETARY APPROACH TO THE BALANCE OF PAYMENTS	
	3.1. Introduction	39
	3.2. The Monetary Approach Under the Fixed Exchange Rate	40
	3.2.1. Global Monetarism Under Fixed Exchange Rate	42
	3.2.2. Foreign Exchange and Domestic Money Market Under a Fixed Exchange Rate	44
	3.3. The Monetary Approcah Under Flexible Exchange Rate	47
	3.3.1. A stationary Economy	51
	3.3.2. An Inflationary Economy	52
	3.4. The Monetary Approach Under Managed Float Exchange Rate	54
	3.5. Stabilisation Policy Under Fixed Exchange Rate	58
	3.6. Stabilisation Under the Flexible and the Managed Float Exchange Rate	59

IV. MODEL SPECIFICATION FOR INDONESIAN ECONOMY

4.1. Introduction 60
4.2. Theoretical Specification of the Model ..61
  4.2.1. Foreign Reserves 61
  4.2.2. Exchange Rates 64
  4.2.3. Prices 67
  4.2.4. Real Output 69
  4.2.5. Domestic Assets 70
  4.2.6. Government Finances 72
4.3. Statement of the Model 73
  4.3.1. Equations 73
  4.3.2. Identities 74
  4.3.3. Definition of Variables and Data Sources 75
4.4. Working of the Model 76

V. EMPIRICAL RESULTS

5.1. Introduction 78
5.2. Estimation Method 78
5.3. Serial Correlation in a Simultaneous Model 80
5.4. Estimation Results 80
5.5. Summary 85

VI. CONCLUSIONS

6.1. Summary 87
6.2. Policy Implications 92
6.3. Suggestions for Further Studies 93

APPENDICES 95
REFERENCES 99

LIST OF TABLES

Table	Title	Page
2.1	Gross Domestic Product (GDP), 1967-1992	8
2.2	Contribution to Growth of real GDP, 1980-1993 (%)	10
2.3	Growth and Distribution of GDP by Main Sector, 1965-1993 (%)	11
2.4	Ratio Money to GDP, 1967-1992 (ratios)	15
2.5	Velocities of Money, 1967-1992	17
2.6	Sources of Money, 1966-1992 (Nominal)	19
2.7	Government Budget and Net Claims on Government, 1966-1992 (Nominal)	25
2.8	Growth of Government Budget (per cent)	27
2.9	Inflation and Exchange Rates, 1966-1992	30
2.10	Composition of Exports by Main Categories at Current Market Prices (US $ million)	34
2.11	Composition of Imports By Economic Categories at Current Market Prices, 1989-1993 (US $ million)	35
3.1	The basic monetarist exchange rate model (continuous time)	51
5.1	Estimated Model, 1971-1992	81

LIST OF FIGURES

Figure	Title	Page
2.1	GDP Growth, 1968-1992	9
2.2	Ratio M1/M2 and QM/M2	14
2.3	Ratio Money to GDP, 1967-1992 (per cent)	16
2.4	Velocities of Money	18
2.5	Sources of Money Growth, 1966-1992 (per cent)	20
2.6	Domestic Credit, Net Claims on Government and Money Supply, 1966-1992	24
2.7	Government Domestic Budget, 1966-1992 (Nominal)	26
2.8	Government Foreign Revenues and Expenditures, 1966-1992 (Nominal)	28
2.9	Inflation Rates	31
2.10	Inflation Rate Differential	31
2.11	The Growth of Real and Nominal Exchange Rates	32
2.12	Nominal and Real Exchange Rates	33
3.1	Assets Market Equilibrium With A Fixed Exchange Rate, e^0	46
3.2	Basic Monetarist Exchange Rate Model in A Stationary Economy	52

LIST OF APPENDICES

Appendix	Title	Page
1.	Indonesia's Macro Economic Variables, 1966-1992	95