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DYNAMICS OF THE INFLATION PROCESS IN THE SEACEN COUNTRIES

Lim Choon Seng, Vincent



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Research and Training Centre
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PREFACE

One of the most important jobs of a central bank is to bring about stable prices, avoiding inflation and deflation. However, this task is made complicated when economies become more liberalised. More than ever, the interaction between inflation and macroeconomic policies has been made more complicated. While the more traditional issues of demand-pull, supply and cost-push are not entirely neglected, for inflation targeting SEACEN countries, the focus has somewhat shifted to that of credibility and sustainability. As inflation process may differ from country to country, this paper aims to provide some insights into the dynamics of the inflation process for the effective implementation of optimal policies to attain short-run stabilisation and long-term inflation goals.

Mr. Vincent Lim Choon Seng, Senior Economist at The SEACEN Centre undertakes this project. Mr. Lim would like to thank fellow colleagues in the research division, in particular Mrs. Kanaengnid Tantigate-Quah, Acting Assistant Director (research), for their support. In preparing this paper, Mr. Lim wishes to gratefully acknowledge helpful comments from member banks and Dr. Christopher Plantier, Adviser, Modelling and research, Economics Department, Reserve Bank of New Zealand. Mr. Lim would also like to thank Mrs. Jami'ah Jaffar, Economist, The SEACEN Centre for helpful research assistance. However, the views as expressed in this paper are those of the author's and do not necessarily reflect those of The SEACEN Centre nor its constituent member banks and monetary authorities.

Dr. Subarjo Joyosumarto
Executive Director
The SEACEN Centre
June 2004

Abstract

Inflation in the SEACEN countries has traditionally been low but it has dramatically declined in the 1990s, particularly after the post-crisis adjustments. Traditionally, money supply is considered an important determinant of inflation but the rapid transformation resulting in a much more liberalised environment seems to have blurred this relationship. On one hand, the extremely open structure of the SEACEN economies plays a rather significant role in amplifying external shocks. As such exchange rate stabilisation should be an integral part of an anti-inflationary programme as exchange rate can play an important part in forming expectations. On the other hand, there are also other determinants of inflation which are beyond the reach of central banks. For example, agricultural supply shocks due to adverse weather. Central banks must therefore approach inflation management in a rather more holistic manner.

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DYNAMICS OF THE INFLATION PROCESS IN THE SEACEN COUNTRIES

I. Introduction

Since the Asian financial crisis in 1997, several SEACEN countries have adopted inflation as the primary target in the conduct of monetary policy. In place of exchange rate, some countries have used inflation as an anchor of monetary policy for economic stabilisation. It is also argued that since monetary policy could only affect monetary variables in the long run, central banks should focus on inflation rather than real economic variables such as output and employment. The adoption of inflation targeting regime has also been influenced by the successful experiences of more advanced economies, such as Canada and New Zealand, where inflation was successfully brought down and has remained low throughout the expansionary phase of the business cycle. More importantly, inflation targeting has been touted to restore the credibility of monetary policy, which is the most important substance of monetary policy.

In spite of these success stories, there were concerns whether the experiences of the more advanced economies could be replicated in the SEACEN economies. As the success of inflation targeting hinges on monetary policy credibility, the risk of not being able to achieve the target is extremely costly. As such, it is crucial to understand the dynamics of the inflation process to be able to ascertain at least to some degree how inflation can indeed be targeted in a precise manner. To what extent could inflation be influenced by monetary policy? What are the other non-monetary factors that exert strong influence over inflation? Is the inflation process similar to the deflation process? What is the average time lag between monetary policy actions and the response of inflation? In addition, knowing the dynamics of the inflation process also enable central banks to project inflation and to make full use of the transmission mechanism of monetary policy.

This paper builds on the previous SEACEN study on “Inflation in the SEACEN Countries: Its Causes and Management” published in 1995.

Objectives

- To enhance the understanding of the dynamic process of inflation in the SEACEN countries; and,
- To assess the effectiveness of monetary policy in the management of inflation in the individual countries.

Issues to be covered

- To examine factors that influence inflation, whether they are demand-pull or cost-push inflation;
- To assess whether the inflation process reveals similar patterns across SEACEN countries; and,
- To assess the timing aspect of inflation response to monetary policy and the implications for the conduct of monetary policy.

II. A Review of Inflation Trends in the SEACEN Countries (1990-2002)¹

2.1 Introduction

In the early nineties, many SEACEN economies experienced “miraculous” strong economic growth. However, inflation rate during this period had generally been relatively low with only a few epochs of relatively high inflation. One such episode was during the phase of rigorous liberalisation efforts in the mid-1990’s which led to the rapid opening of the capital accounts. With a more liberalised environment and a de facto peg to the dollar, the sheer magnitude of the capital inflows crippled liquidity management.² Firstly, the magnitude of these inflows were so large that monetary sterilisation led to higher interest rates and only served to attract more capital inflows. Secondly, the de facto peg to the US dollar prompted numerous episodes of speculative attacks and bouts of currency depreciation contributing to higher inflation. This is particularly evident during the 1997 Asian financial crisis, albeit not in all SEACEN countries. Immediate post-crisis, inflation peaked in several countries, particularly Indonesia and Myanmar but following the aftermath of the financial crisis, inflation rate and its volatility declined sharply. By 2002, Brunei, Taiwan and Singapore experienced deflationary pressure.³

1. Based on member banks annual reports and numerous papers presented by participants of member banks at various SEACEN Training Events and Seminars.
2. In Malaysia, the realised net private capital flows reached its peak of 23.2 percent of GDP in 1993 from 15.3 percent in 1992. In Thailand, the inflows were also extremely large at 12.3 percent of GDP for two consecutive years in 1990 and 1991 with foreign borrowings of the banking sector becoming increasingly important. For Indonesia, Korea, the Philippines and Sri Lanka, the magnitude was not as large but their cumulative inflows were not insignificant. For example, the cumulative inflows reached 8.3 percent in Indonesia (1990-1995) 9.3 percent in Korea (1991-1995), 23.1 percent in the Philippines (1989-1995), 22.6 percent in Sri Lanka (1991-1995). For comparison, the percentages were 45.8 and 51.5 percent respectively for Malaysia (1989-1995) and Thailand (1988-1995) (see the World Bank, 1996). The problem was compounded by the lack of information exchange among East Asian counterparts on capital flows at that time. This issue has been addressed by the formation of the SEACEN Experts Group on Capital Flows.
3. There were some concerns of possible global deflation and prolonged deflation in Japan. However prolonged deflation is unlikely in these domestic economies that are still in the recovery phase and hence inflation is expected to lie low for a few years amid weak domestic demand.

Chart 1: Standard Deviations of Inflation Rates

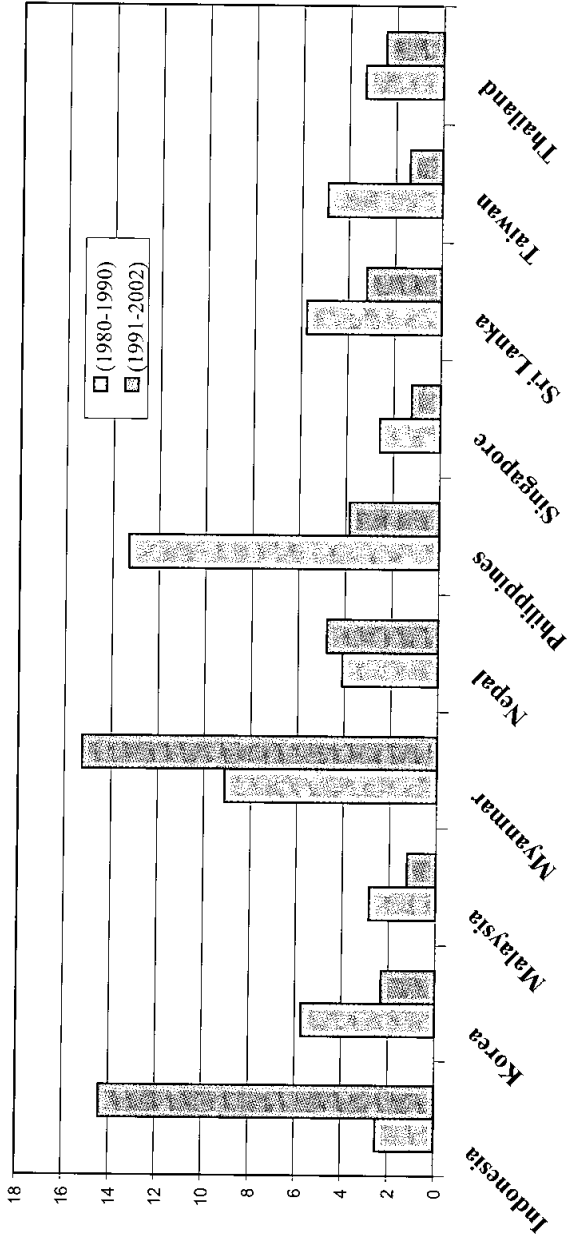


Chart 2: CPI Inflation (Y-O-Y)
(Percentage)

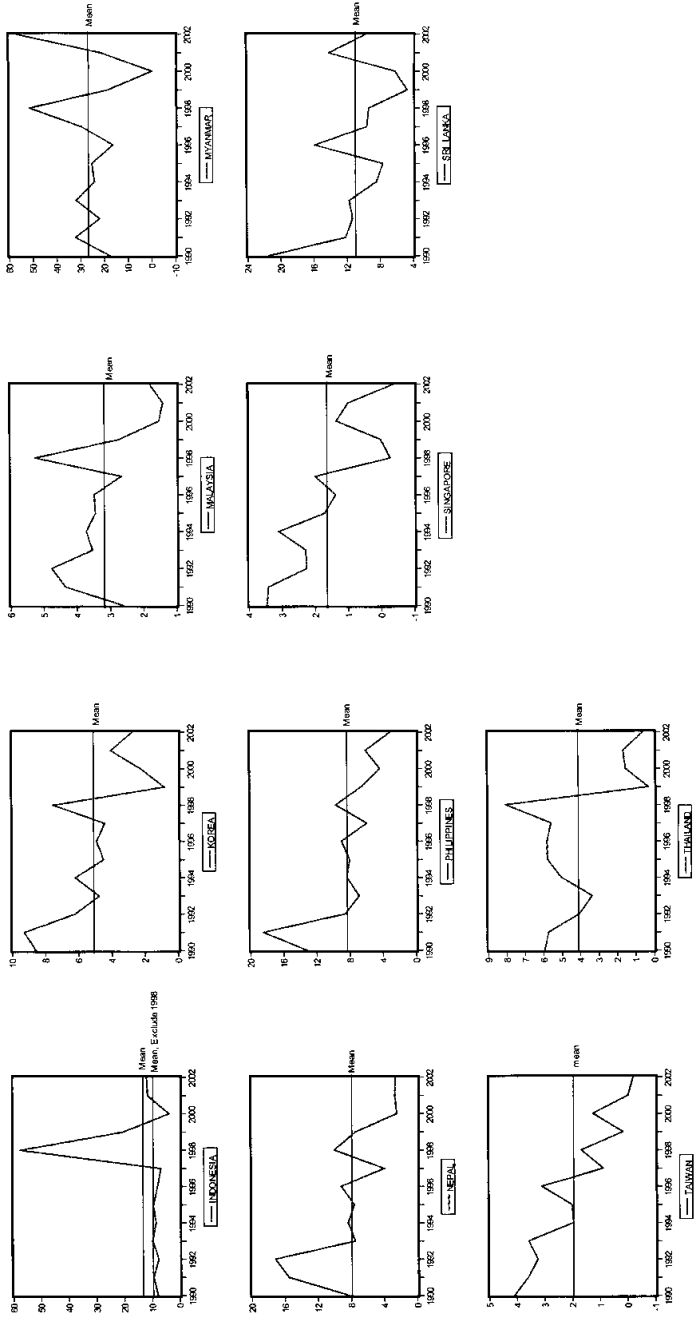


Table 1: Weights of CPI

Base Year	Korea		Malaysia		Singapore		Nepal		Sri Lanka		Thailand	
	2000	2000	2000	2000	11/97-10/98	95/96	95/96	95-97	95-97	98		
Food	27.1 8/	33.8	33.8	27.5	27.5	53.2 8/	53.2 8/	71.2 2/	71.2 2/	38.5		
Housing	15.6	22.4 1/	22.4 1/	22.9	22.9	14.9	14.9	13.1 7/	13.1 7/	25.9		
fuel and lights	5.8	-	-	-	-	5.9	5.9	-	-	-		
clothing	5.7 4/	3.4 4/	3.4 4/	22.9	22.9	8.9	8.9	4.4	4.4	3.7 4/		
Transport and Comm	15.9	18.8	18.8	18.0	18.0	4.0	4.0	2.9 5/	2.9 5/	16.2 5/		
medical care	4.4	1.8	1.8	3.1	3.1	8.0	8.0	2.4	2.4	5.6		
Education	11.5	5.9 3/	5.9 3/	7.3	7.3	7.1 9/	7.1 9/	1.3	1.3	6.7 6/		
Beverages and Tobacco	-	3.1	3.1	-	-	1.7	1.7	-	-	3.5		

1/ include gross rent, fuel and power

2/ includes Tobacco

3/ includes recreational, cultural services

4/ includes footwear

5/ Transport only

6/ includes recreation, publication

7/ water, electricity, gas and other fuels

8/ Includes beverages

9/ Reading and Recreation

Table 2: Statistical Means of CPI Inflation

	(80-02)	(85-90)	(90-97)	(98-02)	(99-02)
INDONESIA	11.7	7	8.2	21.0	11.9
KOREA	6.6	5.0	6.1	3.5	2.5
MALAYSIA	3.4	1.6	3.3	2.6	1.9
MONGOLIA	-	-	-	7.4	7.0
MYANMAR	19.5	17	23.8	29.6	24.1
NEPAL	9.2	10.6	7.3	5.1	3.8
PHILIPPINES	10.9	10.5	7.8	6.0	5.0
SINGAPORE	2.1	1.2	2.1	0.3	0.5
SRI LANKA	11.8	10.7	10.4	8.8	8.7
TAIWAN	3.1	1.8	3.4	0.6	0.3
THAILAND	4.9	3.6	5.6	2.4	1.0
USA	4.1	3.9	2.7	2.3	2.5

Table 3: Unit Root Tests: CPI

Level

First Difference

1980.1-2002.4

1990.1-2002.4

1980.1-2002.4

1990.1-2002.4

		lags		lags				lags		lags	
Indonesia											
ADF	C	3	0.528	3	0.326	ADF	C	2	-5.318 ***	2	-4.430 ***
ADF	T	1	-2.070	1	-2.739	ADF	T	2	-5.365 ***	2	-4.467 ***
PP	C		0.535		0.099	PP	C		-4.647 ***		-3.413
PP	T		-1.426		-1.978	PP	T		-4.653 ***		-3.397
KPSS	C		1.213 ***		0.939	KPSS	C		0.150		0.111
KPSS	T		0.242 ***		0.155 **	KPSS	T		0.062		0.067
DFGLS	C	1	1.717	1	0.347	DFGLS	C	0	-4.733 ***	2	-4.442 ***
DFGLS	T	1	-2.130	1	-2.563	DFGLS	T	2	-4.520 ***	2	-4.552 ***

Korea											
ADF	C	3	-1.460	0	-3.815 ***	ADF	C	2	-2.406	0	-5.879 ***
ADF	T	3	-5.755 ***	0	-2.374	ADF	T	2	-2.417	0	-7.060 ***
PP	C		-2.866		-4.260 ***	PP	C		-4.495 ***		-5.844 ***
PP	T		-4.849 ***		-2.399	PP	T		-5.098 ***		-7.091 ***
KPSS	C		1.264 ***		0.968 ***	KPSS	C		0.384		0.743 ***
KPSS	T		0.118		0.234 ***	KPSS	T		0.115		0.069
DFGLS	C	3	0.437	4	-0.044	DFGLS	C	2	-0.358	0	-5.920 ***
DFGLS	T	3	-2.149	0	-0.894	DFGLS	T	2	-1.491	0	-6.879 ***

Malaysia											
ADF	C	4	-1.585	0	-2.637	ADF	C	3	-2.345	0	-5.826 ***
ADF	T	4	-3.757	0	-0.017	ADF	T	2	-2.582	0	-6.505 ***
PP	C		-2.130		-3.045 **	PP	C		-6.919 ***		-5.877 ***
PP	T		-2.783		0.690	PP	T		-7.319 ***		-6.907 ***
KPSS	C		1.252 ***		0.964 ***	KPSS	C		0.301		0.716 **
KPSS	T		0.110		0.213 **	KPSS	T		0.156 **		0.133
DFGLS	C	4	0.278	4	-0.455	DFGLS	C	3	-2.003 **	3	-2.096 **
DFGLS	T	4	-2.220	0	-0.332	DFGLS	T	3	-2.266	3	-2.668

Mongolia											
ADF	C		n.a	4	-3.179 **	ADF	C		n.a	3	-3.059 **
ADF	T		n.a	2	-4.391 ***	ADF	T		n.a	3	-2.218
PP	C		n.a		-16.28 ***	PP	C		n.a		-2.064
PP	T		n.a		-7.066 ***	PP	T		n.a		-4.361 ***
KPSS	C		n.a		0.731 **	KPSS	C		n.a		0.664 **
KPSS	T		n.a		0.210 **	KPSS	T		n.a		0.179 **
DFGLS	C		n.a	4	-0.161	DFGLS	C		n.a	3	-1.370
DFGLS	T		n.a	4	-1.672	DFGLS	T		n.a	3	-2.329

Myanmar											
ADF	C	1	2.313	1	0.144	ADF	C	0	-5.526 ***	0	-4.305 ***
ADF	T	1	-2.080	1	-2.775	ADF	T	0	-6.388 ***	0	-4.289 ***
PP	C		2.859		0.293	PP	C		-5.526 ***		-4.314 ***
PP	T		-2.136		-2.249	PP	T		-6.334 ***		-4.302 ***
KPSS	C		1.238 ***		0.981 ***	KPSS	C		0.717 **		0.078
KPSS	T		0.271 ***		0.057	KPSS	T		0.087		0.065
DFGLS	C	1	2.875	1	1.081	DFGLS	C	0	-4.562 ***	0	-3.321 ***
DFGLS	T	1	-0.552	1	-2.920	DFGLS	T	0	-6.389 ***	0	-4.006 ***

Nepal											
ADF	C	8	-2.597	8	-2.527	ADF	C	7	-2.077	7	-0.821
ADF	T	8	0.566	8	-0.496	ADF	T	7	-3.249	7	-2.480
PP	C		-2.761		-5.039 ***	PP	C		-8.493 ***		-6.443 ***
PP	T		0.984		-0.189	PP	T		-9.847 ***		-10.83 ***
KPSS	C		1.245 ***		0.940 ***	KPSS	C		0.364		0.360
KPSS	T	8	0.256 ***		0.228 ***	KPSS	T		0.123		0.173 **
DFGLS	C	8	-0.489	8	-0.886	DFGLS	C	7	-0.776	7	-0.897
DFGLS	T		-1.307	8	-1.478	DFGLS	T	7	-1.017	7	-0.972

Table 3: Unit Root Tests: CPI

Level		First Difference	
-------	--	------------------	--

1980.1-2002.4 1990.1-2002.4 1980.1-2002.4 1990.1-2002.4

lags lags lags lags

Philippines

ADF	C	3	-1.948	3	-3.581 ***
ADF	T	2	-2.128	3	-1.715
PP	C		-2.142		-4.074 ***
PP	T		-1.430		-1.819
KPSS	C		1.226 ***		0.972 ***
KPSS	T	2	0.253 ***		0.217 ***
DFGLS	C	2	0.662	4	0.083
DFGLS	T		-1.728	4	-0.796

ADF	C	2	-4.088 ***	3	-2.151
ADF	T	2	-4.458 ***	2	-4.953 ***
PP	C		-5.039 ***		-4.364 ***
PP	T		-5.399 ***		-5.435 ***
KPSS	C		0.336		0.622 **
KPSS	T		0.028		0.064
DFGLS	C	2	-2.496	3	-1.427
DFGLS	T	2	-4.141 ***	3	-3.423 **

Singapore

ADF	C	1	-2.361	1	-3.454 **
ADF	T	1	-2.549	1	-1.237
PP	C		-3.061		-4.667 ***
PP	T		-2.780		-1.176
KPSS	C		1.241 ***		0.906 ***
KPSS	T	4	0.122		0.249 ***
DFGLS	C	1	0.618	2	-0.013
DFGLS	T	1	-0.951	1	-0.638

ADF	C	0	-5.438 ***	0	-3.802 ***
ADF	T	0	-5.770 ***	0	-5.209 ***
PP	C		-5.397 ***		-3.650 ***
PP	T		-5.692 ***		-5.259 ***
KPSS	C		0.427		0.705
KPSS	T		0.125		0.054
DFGLS	C	3	-3.116 ***	0	-3.313 ***
DFGLS	T	1	-2.273	0	-5.313 ***

Sri Lanka

ADF	C	1	-1.515	0	-1.689
ADF	T	1	-2.933	0	-3.361
PP	C		-1.943		-2.781
PP	T		-2.751		-3.383
KPSS	C	1	1.260 ***		0.975 ***
KPSS	T	1	0.154 **		0.140
DFGLS	C		2.176	4	0.556
DFGLS	T		-1.456	0	-2.109

ADF	C	0	-6.892 ***	0	-5.984 ***
ADF	T	0	-7.030 ***	1	-6.070 ***
PP	C		-6.680 ***		-6.311 ***
PP	T		-6.798 ***		-9.828 ***
KPSS	C		0.392		0.327
KPSS	T		0.065		0.198 **
DFGLS	C	0	-3.416 ***	0	-4.810 ***
DFGLS	T	0	-5.559 ***	0	-5.933 ***

Taiwan

ADF	C	9	-2.527	3	-4.858 ***
ADF	T	9	-1.804	3	0.156
PP	C		-0.427		-4.636 ***
PP	T		-1.952		-1.492
KPSS	C		1.202 ***		0.892 ***
KPSS	T		0.172 **		0.252 ***
DFGLS	C	9	-1.861	9	-1.642
DFGLS	T	9	-2.873	9	-1.925

ADF	C	4	-2.701	8	-0.029
ADF	T	4	-2.788	2	-9.417 ***
PP	C		-10.95 ***		-10.46 ***
PP	T		-10.89 ***		-26.97 ***
KPSS	C		0.500 **		0.654 **
KPSS	T		0.500 ***		0.334 ***
DFGLS	C	4	-2.710 ***	8	-0.534
DFGLS	T	4	-2.775	2	-9.575 ***

Thailand

ADF	C	2	-1.344	1	-2.065
ADF	T	2	-3.082	1	-0.308
PP	C		-2.321		-2.227
PP	T		-3.293		-0.066
KPSS	C		1.254 ***		0.954 ***
KPSS	T		0.119		0.185 **
DFGLS	C	2	1.229	2	0.285
DFGLS	T	2	-1.491	1	-0.859

ADF	C	1	-4.046 ***	0	-4.565 ***
ADF	T	1	-4.084 ***	0	-5.128 ***
PP	C		-5.198 ***		-4.579 ***
PP	T		-5.383 ***		-5.128 ***
KPSS	C		0.320		0.429
KPSS	T		0.131		0.130
DFGLS	C	1	-0.919	0	-4.586 ***
DFGLS	T	1	-2.238	0	-5.031 ***

Notes

Augmented Dickey-Fuller (ADF), Philips-Peron (PP), Dickey-Fuller with GLS Detrending (DFGLS) and Kwiatkowski, Phillips, Schmidt and Shin (KPSS).

Level refers to price level (p) and first difference inflation(quarter to quarter changes)

(***) 1% significant, (**) 5% significant, (*) 10% significant

c=intercept, T=trend and intercept

Mongolia: 1991.4-2002.3 and Taiwan 1983.1-2002.4

n.a. : Not available

As food is an important component of the consumer price index (table 1), the inflation rate was also heavily influenced by agricultural shocks caused by adverse weather conditions that affected food supply. Changes in controlled prices such as energy and fuel⁴ were also important factors although adjustments to these prices were not normally done frequently.

From Chart 1 & 2 and Table 2, on average, inflation has declined since the 1980's and none of the selected SEACEN countries, with the possible exception of Myanmar has serious inflation problem. Inflation volatility as measured by the standard deviation has also declined substantially (chart 1). Various versions of the unit roots tests⁵ suggest that the inflation series are stationary. This suggests that the effects of shocks to the inflation rate in the SEACEN countries are not permanent in nature. For example, in Indonesia, the likely cause of the volatile inflation was because of the adverse effects of the financial crisis and subsequently inflation rate did subside substantially.

2.2 Country Analysis

2.2.1 Indonesia

In the early 1990s, following a series of deregulation, strong demand arising from domestic investment was responsible for much of the inflationary pressure. Furthermore on the supply side, shortage of foodstuff was caused by prolonged droughts and disturbance in the distribution of food. However, in 1992, consumer price rose by 4.9 percent, compared to the nearly 10 percent registered in 1990 and 1991 due to the absence of adjustments on the administrated prices. In the following year, the government's decision to raise energy and transportation prices spurred increase in the prices of administrated goods. In addition, the increase in

-
4. The first two oil shocks of 1973 and 1979 launched bouts of inflationary pressures on the SEACEN countries. Oil importing SEACEN countries such as like Korea, Nepal, Singapore Thailand and the Philippines were badly affected.
 5. Augmented Dickey-Fuller (ADF), Philips-Peron (PP), Dickey-Fuller with GLS Detrending (DFGLS) and Kwiatkowski, Philips, Schmidt and Shin (KPSS). We allow up to 4 lags and the lags length is chosen based on Schwartz criteria. In some cases, results of the various tests are inconsistent with each other but in general, there is at least one set of tests to indicate that the series are stationary.

food prices was caused by unfavourable weather conditions. By 1994, foodstuff became a major contributor of inflation as compared to housing. In fiscal year 1995/1996, the supply side again encountered substantial setbacks due to bad weather conditions and higher production costs which led to strong inflationary pressures. Inflation rate rose to 8.9 percent above the 5 percent annual target inflation rate.

During the 1997 financial crisis, inflation pressures came from the depreciation of the rupiah resulting in the passing through effect to food prices and the prolonged drought and forest fires, which reduced food supply. Furthermore, food prices continued to increase due to speculative buying of goods as a result of rumours concerning the scarcity of commodities. This was worsened by social unrest in May 1998 resulting in the disruption of distribution networks. To combat inflation, the government pursued tight monetary policy resulting in reducing inflation from over 70 percent in 1998 to 2 percent in 1999. However, interest rates went as high as 70 percent in response to the monetary contraction, but they fell rapidly to the 10 percent to 15 percent range. At around this time, improvement in the supply of food, low wage pressure, weak demand and the strengthening of the rupiah together with the decline of international prices for some imported products helped to contain inflationary pressure. By 2000, inflation was 9.4 percent, mainly stemmed from the adjustment in administrated prices and exchange rate depreciation. During 2001, inflation again rose to double-digit figure of 12.5 percent due to some adjustment in administrated prices, exchange rate depreciation and stronger demand pressure. However, in 2002, inflation pressure has eased to around 10 percent mainly associated with government policy on prices of several public goods, such as oil, electricity tariff, telephone and transportation.⁶

2.2.2 Korea

In Korea, in 1990 and 1991, inflation rate was relatively high, at about 8.6 percent and 9.3 percent respectively. This was mainly due to the spillover effect of an economy arising from a rapid rise in disposable incomes. Furthermore, the new democratisation process caused steep

6. These commodities contribute to around 3.3 percent to the total inflation rate.

wage hikes. However, following efforts by the authorities, inflation moderated in the subsequent two years. Among the measures taken were tighter monetary and fiscal policies to contain private and public consumption as well as steps to depress asset price inflation. However, in 1994, inflation once again rose to 6.3 percent due mainly to increase in the prices of agricultural products as a result of poor harvest as well as hikes in the prices of charges for public and personal services. The next round of inflation pressures came after the financial crisis of 1997 where inflation rose to 7.5 percent in 1998. However, inflationary pressures declined in the following year due to slower economic growth despite a loose monetary policy to stimulate business activity. By 2001, inflation has again rose to 4.1 percent compared to 2.3 percent in 2000, mainly due to higher public utilities charges, including medical fees, urban gas utility charges and sharp increase in house rents. However by 2002, inflation pressure was at a historical low of 2.7 percent, mainly due to moderate inflationary pressures on the demand side as well as stable foreign exchange and public utilities charges. In 2003, high wage growth and oil price hikes raised inflation rate to 3.6 percent.

2.2.3 Malaysia

From 1990 to 2002, there were two inflationary periods, namely 1991-92 and 1998. In 1991 and 1992, the economy was on the verge of overheating as the economy expanded by around 8.7 percent and 8.5 percent respectively.⁷ Supply infrastructure constraints and labour shortages resulted in mounting inflationary pressures. Monetary policy was tight since 1989 to manage excess demand but the conduct of monetary policy was complicated by the high degree of openness which allowed large capital inflows resulting in ample liquidity to the economy. The resulting higher interest rates, expectation of exchange rate appreciation as well as the robust stock market attracted large amounts of capital inflows into the country, making inflation management extremely difficult.

7. An interesting development in Malaysia during the period of rapid expansion between 1990 to 1996 was the rapid increase in asset price inflation due to higher speculative gains. Malaysia took several measures to contain asset price inflation. Among them were curbing property lending by reducing financing margin for non-owner occupied dwellings, imposing capital gains tax and levy on purchase of real estate by foreigners and limiting banking sector exposure to specific property sub-sectors to not more than 20 percent.

Statutory reserve requirement as well as interest rates on direct short-term borrowing from the money market were raised. A similar arrangement was effected with the centralisation of the Employee Provident Fund (EPF).⁸ Fiscal policy remained prudent and was aimed at promoting savings. Micro-measures such as removal of import duties of several hundred items were reduced or abolished and to help raise supply and efficiency in the distribution of food, a Fund for Food Scheme was set up. By 1997, despite a combination of strong credit growth and tight labour market, inflation was reined in by tight monetary and fiscal policies. CPI inflation registered an increase of 2.7 percent in 1997.

Price pressures were once again evident after the Asian financial crisis where the inflation rate rose to 5.3 percent in 1998. The CPI peaked in June that year to 6.2 percent before moderating to 5.3 percent in December. This was mainly due to the impact of the depreciation of the Malaysian ringgit. However, excluding food, the adjusted CPI rose by only 3.1 percent. The dilemma this time was how to balance the use of monetary policy to stabilise price and avoid a further contraction of the economy due to the Asian financial crisis. The subsequent fixing of the ringgit against the US dollar helped to stabilise the ringgit, resulting in lower inflationary expectations. Since 1998, inflation was kept low averaging around 2.0 percent from 1999 to 2003.

2.2.4 Mongolia

Prior to 1990, Mongolia was a centrally planned economy but it started to liberalise its economy during the early 1990's. During this period of liberalisation which included the establishment of a new banking and financial system and privatisation, Mongolia experienced an initial spike in inflation as price controls were removed. From 1990 to 1993, inflation reached triple. It reached a peak of 330 percent in 1992. The inflationary pressure was also a direct result of shortages of basic goods and food rationing. The tugrik was floated in 1993 and the subsequent strong depreciation of the currency fuelled inflation. However, the Bank of

8. It was costly to the central bank due to the high cost of interest payable to financial institutions, government and statutory agencies for holding their funds in order to keep the growth of liquidity down (Bank Negara Malaysia Annual Report, 1993).

Mongolia managed to reduce inflation to double-digits by end- 1994. In 1997, a tight monetary policy further led to an annual average rate of inflation of 17.5 per cent. By then, much of the restructuring had already taken place and this directly lessened the burden on large price movements. Since 1998, inflation has been in low single digit for a number of years. In 2002, Mongolia's inflation rate stood at 1.6 percent.⁹

2.2.5 Nepal

In Nepal, although domestic factor such as supply conditions is an important determinant of inflation, the inflation rate is heavily influenced by international oil price and India's inflation rate.¹⁰ Inflation remained low with the exception of 1992/93 and 1998/99 when inflation shot up to round 21 percent and 16.1 percent respectively. In both periods, the main cause was the depreciation of the Nepalese currency vis-à-vis the US dollar and other convertible currencies. Following the devaluation, the government reduced subsidies on administrated good such as petrol, wood fuel, milk, education fee, telecommunication and electricity. Being an agricultural country, weather conditions also play an important part.¹¹ In 1998, the agricultural sector was severely affected by adverse weather conditions and furthermore, inflation rate in India also accentuated price increase in Nepal. Inflation rate would have been higher if not for lower demand pressure due to the slowdown in construction, real estate and manufacturing sectors. In 2000, due to better crop production on account of improved weather condition, inflation declined to a ten-year low and by 2001, inflation at 2.9 percent was at its lowest in more than twenty years.

9. There was not much indexation in Mongolia partly because while inflation is rather high and volatile. The period of high inflation has been relatively short and indexation had not had time to take root.

10. The Nepalese currency is de facto pegged to the Indian Rupee. The large volume of trade with India due partly to the porous border with India is a constraint to the stance of monetary policy. Correlation between the two inflation series of India and Nepal from 1990 to 2002 is 0.84.

11. The agricultural sector contributes around 40 percent of GDP.

2.2.6 Philippines

The Philippines registered a relatively high inflation of 13.2 percent in 1990 due to the devastating volcanic eruption of Mt. Pinatubo, the severe droughts in the Visayas and Mindanao regions and the July 16 earthquake which interrupted supply and distribution of food. Furthermore, domestic prices of oil and petroleum were also adjusted upwards as the peso depreciated from 22.4 peso per US dollar at end-1989 to 28 peso at end-1990. In addition, the Gulf war contributed to greater uncertainty amid increased speculative activities. The high inflation rate spilled over to the following year where it accelerated to 18.5 percent. However, by 1994, inflation was at around 9 percent, slightly lower than the 9.5 percent targeted by the economic and financial program of the IMF. Inflation during this period was mainly caused by temporary shortage of agricultural produce caused by a series of typhoons as well as phased increases in minimum wages in December 1993 and 1994. A depreciating peso, the up-trend in interest rates and money supply growth also partly pushed prices upward during the period.

The lingering effect of rice shortage, the implementation of expanded value-added tax (EVAT) as well as higher oil prices pushed inflation rate close to 9 percent in 1996. Following the financial crisis in 1998, the 27 percent depreciation of the peso together with the El-Nino phenomenon put pressure on food price inflation. However, overall inflation was kept at bay due to low global price of petroleum products, falling import prices as well as the domestic deregulation of the petroleum industry which enhanced competition. By the following year, favourable weather resulting in good harvest of rice and corn cushioned the effect of a 13.2 percent increase in domestic oil prices, a 20 percent increase in transport charges and a nationwide adjustment in minimum wages. By 2002, annual inflation stood at 3.1 percent, the lowest since 1998. This was well below the government's full pledge target of 4.5-5.5 percent.

2.2.7 Singapore

Singapore's inflation rate has been consistently low. In the period 1990-2002, inflation averaged only 1.6 percent. Following the economy's recovery from the 1986 recession, inflation rose from about 1 percent in 1987-1988 to average around 3 percent in 1989-1991. The build-up

in inflationary pressures largely reflected domestic cost-push factors resulting from a tight labour market, as well as the effects of higher world oil prices following the outbreak of the Gulf crisis. CPI inflation averaged 2.3 percent in 1992-1993 before rising to 3.1 percent in 1994. The increase was largely due to the implementation of the 3 percent Goods and Services Tax (GST) in April 1994, and higher imported inflation to some extent. The price increase also partly reflected the significant rise in real estate prices for private housing, which recorded an average annual rate of 36 percent in 1993-1994. However, these price increases were partly offset by intense competition among domestic retailers and wholesalers, as well as some loosening in wage pressures following the increased intake of foreign workers.

During the regional crisis, unlike most SEACEN countries, inflation in Singapore declined to negative 0.3 percent in 1998 before coming in flat in 1999. This was mainly due to cyclical factors reflecting the weak demand and poor consumer sentiment. Inflation, however, rose to 1.3 percent in 2000 as a result of global oil price shocks, and the strong rebound in the domestic economy. In the absence of external cost pressure and persistent slack in the labour and product markets, inflation moderated to 1.0 percent in 2001 before falling to negative 0.4 percent in 2002. Again, these reflected the efficient adjustment of costs and prices to the cyclical downturn. Alongside the economic recovery more recently, consumer prices have turned around to record an increase of about 1.4 percent in Jan-Feb 2004, after averaging 0.5 percent for 2003 as a whole.

2.2.8 Sri Lanka

Sri Lanka recorded an increase of 21.5 percent in inflation rate as measured by Colombo's consumer price index in 1990. The increase was the highest recorded since 1980. Higher food prices accounted for about 74 percent of the total increase. Corrective adjustments in administrated prices such as tariffs and postal rates were also responsible for the rapid rise. From 1991 to 1993, inflation averaged 11.8 percent due mainly to the reduction in administrated prices of essential items and favourable supply of some agricultural commodities but the acceleration of monetary aggregate growth generated some inflationary pressure. Inflation then decelerated further to 8.4 percent in 1994, due to the reduction in administrated prices that came into effect in June the same year. By 1995,

it further dropped to 7.7 percent, the second consecutive year of single digit rise in the index since 1987. However, inflation shot up once again in 1996, due mainly to the effect of a drought and changes in administrated prices. The next three years saw declining inflation rate from 9.6 percent in 1997 to 6.2 percent in 2000. Inflation averaged 4.7 percent in 1999, the lowest rise since 1985, due to a declining trend in the food price sub-index. However, in 2001, inflation accelerated to 14.2 percent, in an environment where the economy contracted for the first time since independence in 1948 by 1.25 percent. This increase, the second highest in a decade was due to severe drought, depreciation of the rupee, international price increase of some key consumer and intermediate good imports and increase in the administrated prices of petroleum products. By 2002, inflation declined once again to a single-digit of 9.6 percent, due to an improvement in the production of agricultural commodities, better distribution of goods due to improved transport facilities within the island, stable exchange rate and cautious monetary management.

2.2.9 Taiwan

Taiwan is one country with historically low inflation rate. In the 1990's, inflation was strongly influenced by domestic factors such as seasonal fluctuation in food prices, unit labour cost as well as external factors such as the world prices of industrial raw materials. For instance, in 1992, inflation rate rose to 4.5 percent, the largest increase in eleven years, due to abnormal weather resulting in the rise in prices of agricultural products. A series of typhoons in 1994 was again responsible for the increase in the CPI inflation. However, since 1997, inflation remained low due to favourable weather, trade liberalisation, increased competition and technology innovation which resulted in the decline for household products, moderate increase in the world price of commodities, gradual appreciation of the NT dollar against the US and the reduction in custom tariffs. The central bank notes that the continuous weakening of unit labour cost since 1995 has been crucial in keeping inflation down. Taiwan experienced some deflation by registering negative growths of 0.01 and 0.2 percent in 2001 and 2002 respectively.

2.2.10 Thailand

Continued strong expansion in domestic demand pushed inflation to around 6 percent in 1990. However, in 1991, Thailand's economy slowed down due to the advent of the Gulf war and unfavourable domestic political climate but inflation declined only slightly to 5.7 percent due to higher oil prices. In 1992, inflation stood at 4.1 percent due to moderation in cost pressure as a result of lower oil prices, low material import prices and low prices of domestic agricultural products. Inflation continued to decline in 1993 to 3.3 percent as domestic expenditure remained weak. However, in 1994, inflation reversed its trend by registering a rate of 5.0 percent. This was due to unfavourable weather conditions and floods which affected food production. The increase in civil servants' salaries also had a psychological effect on food prices. In addition, demand-side pressures built up as the stock market reached its peak in January 1994. Between 1995 and 1996, inflation averaged around 5.8 percent. This was mainly due to adverse weather conditions which affected food supply, the rising cost of raw material imports and strong domestic demand.

Inflation started to accelerate a year after the financial crisis to 8.1 percent in 1998 from 3.6 percent in 1997, due mainly to the depreciation of the exchange rate, higher agricultural product prices, increased value added taxes and excise taxes of some commodities in the second half of 1997 as well as the petroleum tax in 1998. However, by the following year, in 1999, inflation decelerated to 0.3 percent due to a decline in food prices, the reduction of the value of added tax rate, stronger baht and stable oil prices. In addition, a contraction in domestic demand brought about unemployment risk, thereby mitigating the pressure to raise minimum wage. In the following three years, inflation remained subdued. By 2002, inflation rose by only 0.7 percent as core inflation rose by 0.4 percent. Underlying the decline was the continued appreciation of the baht and stable administrated utility charges.

2.3 Current Policy Issues:

2.3.1 The Framework of Monetary Policy for Inflation

While the objectives of SEACEN central banks remain focused on inflation (see table 4), it remains debatable whether in practice this is the case. Some central banks allow for the single objective of price stability while others pursue simultaneous multiple objectives such as economic growth and employment. There is often a trade-off between monetary policy strategies such as issues relating to the variability of inflation, on one hand, and the variability of output, interest rate and exchange rate on the other.

A typical loss function for a central bank may look like:

$$L_t = \frac{1}{2}[(\pi_t - \pi^*)^2 + \lambda (y_t - y_t^*)^2]$$

π is inflation, π^* is an inflation target, y_t is output, y_t^* is potential output. In practice, when $\lambda > 0$, a central bank is a multiple targeter.

Traditionally central banks in the SEACEN region make use of intermediate targeting system such as broad monetary aggregate. However, in some SEACEN countries, rapid innovations have blurred the link between monetary aggregates and other macroeconomic variables. Four SEACEN countries have since followed inflation targeting (IT) with price stability as the overriding objective.

Indonesia, subsequent to the implementation of the 1999 Central Bank Law, switched from monetary targeting to inflation targeting to allow the exchange rate to move with market mechanism. The new enactment, in contrast to the previous law which allowed multiple objectives for monetary policy, has the sole objective to preserve the stability of the rupiah.¹² According to Alamsyah et al. (2001), while the value of the rupiah is not explicatedly stated, an alternative explanation refers to the value of the goods and services that rupiah could buy. With this interpretation, it implies the maintenance of domestic price stability. The new Law also provides a framework for IT. Currently, Bank Indonesia uses base money as its operational target as monetary aggregates is still considered useful for monetary policy implementation. Indonesia is expected to move to the full-pledged inflation targeting by 2004.

¹². Alamsyah et al. (2001).

Table 4: Objectives of Central Banks/Monetary Authorities of Selected SEACEN Countries

Indonesia	To Achieve and Maintain the Stability of Rupiah, MP to achieve Inflation Targeting and smooth the rupiah exchange rate volatility
Korea	Price Stability, Inflation Targets every year- Inflation Targets at Medium-Term Horizon (three years)
Malaysia	Objective of Monetary Policy is to maintain price Stability
Mongolia	To achieve annual inflation rate set by the State Monetary Policy Guideline
Nepal	To ensure price stability, external sector sustainability and to facilitate economic growth
Philippines	To ensure the maintenance of price stability conducive to a balanced and sustainable growth of the economy
Singapore	Seeks to promote sustained non-inflationary economic growth and a sound and vibrant financial Centre
Sri Lanka	Maintenance of monetary growth consistent with sustainable economic growth, price stability and financial system stability
Taiwan	By Law, price stability is one of the major goals of MP, and in practice, Taiwan adopts monetary targeting which takes inflation and real growth into account
Thailand	Adopts Inflation targeting with price stability as the overriding objective

Table 5: Inflation Targeting in SEACEN Countries

Concept Target	When	Mid-Term Targets	Central Banking Reforms
<i>Indonesia</i> Consumer price inflation excluding the effect of government price and incomes policy (net inflation) Headline CPI inflation	January 2000- December 2001 January 2002- present	4-6% 6-7%	Enactment of new Central Bank Law in May 1999
<i>Korea</i> Headline CPI inflation in 1998-99; since then core inflation(excluding petroleum and agricultural products other than cereals)	September 1998	2.5% Since 2004, 2.5-3.5%	1997
<i>Philippines</i> Two-year policy horizon CPI headline inflation but take into account 'core' inflation	2002-2003 2004-2005	4.5-5.5% 4.0-5.0%	1993
<i>Thailand</i> Consumer price inflation(core) excluding raw food and energy prices	May 2000	0-3%	On-going

Source: Table 3. McCauley(2001) with modification and additions.

Following the 1997 financial crisis, Korea adopted inflation targeting under the Bank of Korea (BOK) Act 1997, with price stability as the main objective of the central bank (see table 5). The BOK first adopted consumer price inflation targeting in 1998 as the CPI then was considered the most recognisable indicator.¹³ However, the BOK shifted to core inflation in 2000. The BOK also sets both annual inflation target and mid-term target.¹⁴ Until 2000, BOK utilised M3 as its intermediate target and changes in the level of interest rates (overnight call money) as its operating target.¹⁵ Currently M3 is used as a monitoring vehicle as BOK considers its function weakened by changes in the financial system, such as portfolio shifts among financial institutions. In 2003, Medium-term Inflation Target System was introduced by the 7th revision of the Bank of Korea Act. And since January 2004, the medium-term inflation target has been set to a range of 2.5-3.5 percent and applied for the 2004 to 2006 period without an annual inflation target.

In the Philippines, while the decision to switch to inflation targeting was made in January 2000, it became operational after a two-year period in 2002. The Philippines case was supported by numerous studies indicating that intermediate monetary target, due to the instability of money demand, may no longer be useful and consistent with the final inflation objectives (Stone, 1995, Goldsbrough and Saidi, 1989 and Debelle and Lim, 1998). In addition, in the case of the Philippines, Debelle and Lim (1998) argue that swings in monetary policy were as a result of the central bank pursuing multiple objectives. In Thailand, the situation was

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13. There is a need for central bank to decide whether targeting inflation is better than targeting price level. As pointed out by Mishkin, targeting price can reduce uncertainty about what the price level will be in the long-run, thus making planning difficult [Mishkin (2001)]. Mishkin argues in favour of inflation targets over price-level targets as inflation target misses are not revised by central banks while price level targets require that missed targets be revised resulting in more volatility to monetary policy in the short-run.
 14. The medium-term inflation target was introduced in 2000 as in the case of annual inflation target, there were some difficulties in conducting preemptive monetary policy due to the fact that it takes over one year for monetary policy to have any impact (Bank of Korea, 2004).
 15. Before the crisis, monetary management was done through base money in a fragmented and thin market for its central bank bills.

a bit different from Korea as it only adopted inflation targeting after the completion of the IMF programme in May 2000. The Bank of Thailand (BOT) also chose to target core inflation at the onset. According to the BOT,¹⁶ core and headline inflation are statistically correlated, meaning that “the maintenance of price stability in terms of core inflation will therefore lead to overall price stability”.

The question is whether inflation targeting is an appropriate regime for SEACEN economies. Debelle (2000) concludes that there are some important prerequisites for countries to adopt IT. Among them are central bank independence and the commitment and backing of the authority to increase the credibility of the IT regime. Debelle argues that when inflation is relatively low, it is optimal to introduce IT as the “disinflation costs are already sunk”. Mundell (2000) argues that although inflation targeting is more difficult to implement than monetary targeting, it is the best instrument to bring inflation down from below 15 percent to 4-5 percent. However, Gensberg (2002) argues that even though IT provides a stable nominal anchor, preferably, an IT framework should be flexible to allow it to be adapted to different circumstances of each country. While Debelle (2000) warns that IT is not an immediate cure for inflation problems, it appears that as many SEACEN countries have succeeded in managing inflation through a well-defined monetary framework, an IT regime seems appropriate to “lock-in a low-inflation environment in the future”.

For Mongolia, Nepal, Sri Lanka and Taiwan, the implementation of monetary policy remains traditional, i.e. mainly through monetary targeting. In general, these central banks set monetary aggregates as their intermediate targets. However, the Central Bank of Sri Lanka is studying the possibility of moving to inflation targeting in the near future. Malaysia motivated by amongst others, the weakening relationship between monetary aggregates and other economic variables and the large capital inflows during the 1992-1993 period followed by a reversal in the following year shifted from monetary targeting to interest rate targeting towards the mid 1990's. Nevertheless Bank Negara Malaysia still monitors monetary aggregates closely. Myanmar also follows interest rate targeting

16. Bank of Thailand website.

with the sole aim of promoting investment in the productive sector. Singapore on the other hand, since 1981 has been implementing exchange rate targeting to achieve price stability. It has adopted the nominal effective exchange rate (NEER) as an intermediate target. This choice is influenced by the fact that Singapore is a small open economy where the export sector relies heavily on imported goods.

2.3.2 Optimal Inflation Rates

Several issues will need to be addressed when implementing policies to fight inflation. One concern is what is the optimal inflation rate. As far back as 1969, Friedman¹⁷ argues that the optimal inflation rate is one where households are not penalised for holding monetary assets that bear no interest. This calls for a zero nominal interest rate, implying price should keep falling at the real rate of interest. Sinclair (2003) argues that central banks typically want to aim for some positive inflation rate as this would leave the options for central banks to cut nominal interest rates in bad times. He also points out that market imperfections, among others, such as inertia in nominal prices and the need to distort taxes calls for a positive inflation rate. Phelps (1973) in the context of optimal taxation also argues that the optimal inflation rate should be positive. However, some economists argue that the long run inflation goal should be zero inflation (Feldstein, 1997 and Poole, 1999). Lucas (2000, 2003) notes that a reduction of annual inflation rate from 10 percent to zero in a modern economy is equivalent to an increase in real income of slightly less than one percent.¹⁸ However, it should be noted that overly committed anti-inflationary program may result in policy makers “tempted to make monetary policy and the exchange rate do what the fiscal policy has not achieved” (Dornburch,1992). Furthermore, if the targeted inflation is unrealistic, the public cannot be easily convinced of the credibility of the central bank to pursue such policy right to the end (Aiyagari,1991).

17. Friedman M., (1969).

18. This figure probably represents the upper bound for developing countries due to market imperfections.

While there is generally no consensus on the optimal rate, it is generally agreed that 1.5-2.0 percent can be considered the optimal rate (IMF, 1993, Dornbusch and Fischer, 1994). Greenspan (1993) provides a now widely cited definition of price stability as “the expected changes in the average price level are small enough and gradual enough that they do not materially enter business and household decisions.”

2.3.3 Independence of Central Banks

Central bank independence in the context of IT framework has been extensively discussed. Wood (1993) notes several measure to evaluate the degree of central bank independence. These include:

1. Who makes monetary decision?;
2. Who appoints the central bank Governor and the Board of Directors?; and,
3. How secure are their contracts and who determines and influences the central bank budgets?

In recent years, some SEACEN central banks have been granted legal independence.¹⁹ For Bank Indonesia, the enactment of the new central bank act conferred its status as an independent institution and freedom from intervention by the Government and any other external parties²⁰ while article 3 of the Bank of Korea Act notes that the “[t]he monetary and credit policies of the Bank of Korea shall be formulated neutrally and implemented autonomously and the independence of the Bank of Korea shall be respected”. In addition, on August 2003, the Act was further revised to enhance the degree of independence of the Bank of Korea. In the Central Bank Act (Republic Act No. 7653) of the Philippines, it explicitly recognises the independence of the *Bangko Sentral ng Pilipinas* by stating “The State shall maintain a central monetary authority that shall function and operate as an independent and accountable body”. It is interesting to note that following the early stages of transition, as a tight monetary policy was needed to manage the initial spike in inflation, Mongolia enhanced the legal independence of the central bank to strengthen its credibility.

19. McCauley (2001) makes the distinction between legal dependence and behavioural proxies for independence.

20. Bank Indonesia Website.

While there is no consensus whether legal dependence is associated with lower inflation, the issue of independence has been linked to credibility. A central bank is supposed to be more credible if its decision is autonomous and is not subjected to any pressure from any groups. However, it is noteworthy to note that while many other SEACEN central banks are not fully independent and not even semi-autonomous, it is difficult to find instances where central banks make excessive changes in their policies in combating inflation. The mandate of the central banks is clear: keep inflation and inflation expectation low (see table 5).

2.3.4 Asset Price Inflation.²¹

Asset price inflation experienced in many SEACEN countries put pressure on inflation.²² In many instances, asset price inflation was caused by speculative activities. Speculative bubbles as a result of continuous overvaluation by the markets were widespread in Indonesia, Korea, Malaysia, Singapore, Taiwan and Thailand. As CPI has limitation to gauge inflationary pressure and asset prices can reflect expected inflation not yet shown up in conventional measures, there is debate on whether information on asset price may be useful for monetary policy strategies. Certainly large and persistent asset price misalignments may give rise to widespread financial instability but using monetary policy to manage asset price inflation may lead to premature tightening of monetary policy. However, it may be troublesome for central banks to continuously monitor asset price bubbles. Bubble detection requires independent knowledge of asset prices and may be affected by non-fundamental elements.

SEACEN central banks did react to asset price inflation though not necessarily to improve overall macroeconomic performances. For instance, among the measures, include policies to contain possible excessive speculation such as the imposition of credit ceilings on the private sector and on the real estate sector and limits on the loan-value ratio as a cushion against possible decline in collateral value of the bank loans.²³ More direct

21. See Jung and Lim (2002).

22. It is worthwhile to note that price stability is not a sufficient condition for financial stability as asset price inflation could occur in a period of relative price stability (McCauley, 2001).

23. Guinigundo (Ed), 2001.

measures include curbing excessive liquidity such as increase in the reserve requirement and the rediscount rate as well as the issuance of stabilisation bonds. Indeed, SEACEN central banks appear to be more concerned over the indirect impact on the financial system than the direct impact on the price of goods and services.

2.3.5 The Deflation Threat

Another issue is what if inflation rate is already very low? While the threat of inflation is increasingly lessening, deflation has become an issue of concern as several SEACEN countries such as Brunei and Taiwan experienced deflation in 2003. There was also concerns on how deflationary pressure may spread and how central banks should deal with such a situation. As mentioned earlier, even though it is increasingly clear domestic SEACEN economies are still in a recovery stage²⁴ and inflation may remain low for the next few years as domestic demand remains weak, rapid deflation is unlikely to occur as the region is trying to promote inter-regional trade to boost regional domestic consumption through multilateral and bilateral agreements. In addition, central banks are either cutting or maintaining an interest rate band to promote economic growth.²⁵

24. As at 2003/2004,

25. In period of deflation, the issue of credibility is important. Sherwin (2000) notes that central bank must continue to maintain a track record of price stability as credibility of the central bank at low inflation is utmost importance as it could eliminate an important disturbance to inflation-inflation expectation.

III. A General Model of Inflation²⁶

A general model of inflation can be derived by assuming that the price level (p) is a weighted average of price of tradable goods (p^t) and non tradable goods(p^n).²⁷

3.1 Overall Price Level: Tradable and non-tradable goods

In natural log (\ln) linear form,

$$1. \quad \ln(p) = \theta \ln(p^t) + (1 - \theta) \ln(p^n)$$

where

$$2. \quad \ln(p^t) = \ln(e) + \ln(p^f)$$

$$3. \quad \ln(p^n) = b\{\ln(M^s) - \ln(m^d)\}$$

The price of tradable goods (p^t) is assumed to be a function of the exchange rate(e) and the weighted average prices of the trade partners (p^f). Exchange rate fluctuation could influence prices through intermediate goods as well as final goods. The price for non-tradable goods (p^n) is modeled to move in line with overall demand in the economy. Thus price of nontradable goods is determined by money market equilibrium [where real money supply(M^s/p) equals real money demand (m^d)].²⁸

26. Various versions of this model have been used by the World Bank and the IMF, see Chibber A.,(1991) and Moser C.G., (1994). With some modifications, this version is derived and based on Moser (1994).

27. Inflation is defined as a process in which there is a continuing increase in the average level of price of goods and services. With the definition above, price increase in individual goods, temporary increase in prices, and a one-off increase in prices do not necessarily qualify as inflation. Although one recognizes that the average price of goods and services is a function of individual prices, price increase in some individual goods may not be taken as a measure of inflation as the price of other individual goods may be declining. A one-off increase could push the price level up but if the adjustment is not instantaneous, the rate of price could increase, and subsequently, it would adjust to equal the prior one-off increase in prices.

28. According to the Walrus law, an excess demand in a market must be equal to an excess supply in another market. Khan (1980) argues that because of the relative underdeveloped financial markets, the substitution effect between money and goods is more important than between money and other financial assets. In this case, the excess demand is reflected in the money market.

3.2 Money Demand Equation

$$4. \quad m^d = f(y, i, \Pi^e)$$

Real money demand is modelled in a standard manner where it is a function of real income (y), opportunity of holding real balances (i) and inflation expectation (Π^e), Money supply in this context is determined by the direction of the monetary as well as the fiscal policy stance. Often, the conduct of fiscal policy is not independent from the monetary policy. Fiscal deficit could cause acceleration in the growth of money. The government can borrow from the central banks or it could borrow from the public to finance its budget deficit. Borrowing from the central banks results in money creation which increases high-powered money, *ceteris paribus*. This to a monetarist means that excessive monetary growth would result in more inflation. In other words, monetary policy cannot be called to finance government expenditure if it is to provide a stable anchor.

The relationship between money creation and budget deficit is almost a direct one in less developed financial markets. The reason being in a relatively less developed financial system, the market is not sufficiently developed to absorb the persistent increase in government debt and hence the central bank is 'forced' to purchase much of the debt, resulting in an increase in monetary base and hence money supply.²⁹ Budget deficit can become the main determinant of money growth. Thus, in this case, budget deficit variable could be excluded in the price equation.

29. For Instance, in Mongolia, the early phase of transition to a more liberalized economy was accompanied by large fiscal balances and as government securities market was virtually nonexistent, these deficits have to be monetised.

Assuming adaptive expectation,

$$5a. \quad \Pi^e = d\Delta\ln(p_{t-1}) + (1-d) \Pi_t^e + \omega_t$$

assuming $d=1$,

$$5b. \quad \Pi^e = \Delta\ln(p_{t-1}) + \omega_t$$

Substitute 5b into 4, the log linear money demand equation becomes

$$6. \quad \ln(M^d) = \alpha_1 \ln(y) - \alpha_2(i) - \alpha_3 \Delta\ln(p_{t-1}) + \tau_t$$

Substitute 6 into 3, equation 3 becomes

$$7. \quad \ln(p^n) = \beta_1 \ln(M^s) - \beta_2 \ln(y) + \beta_3(i) + \beta_4 \Delta\ln(p_{t-1}) + \psi_t$$

Substitute 7 and 2 into 1

$$8. \quad p = f [M^s, y, i, e, \Delta\ln(p_{t-1}), p^f, CF]$$

Where CF is cost-push attributed to a host of non-monetary influences such as increase in wages, supply shortages, oil prices³⁰ and monopolies in setting of their pricing policies.³¹ The expected signs of the explanatory variables are: m^s , i , e , p^f and CF positive and y negative.

In the above model, income and the price level are negatively correlated as the dynamics of the process are through the money market. That is, there is no trade-off. According to the structuralist view, because of various rigidities of elasticities in the economy, e.g., supply con-

30. Member banks report that there is a close association between inflation and domestic increase in the price of oil-based products. However, oil dependent countries such as Korea, Philippines, Nepal, Singapore, Taiwan and Thailand will see some net increase with increase in oil prices while exporters such as Malaysia and Indonesia will be less affected should oil price start to rise.

31. Higher wages paid by employers without a corresponding increase in productivity could be seen as a cost-push factor in the sense that wages are part of production cost. It also implicitly implies that producers as profit maximising agents would mark-up the price of goods and services. However, with flexible labor markets as well as price flexibility in both directions, wage inflation may not necessarily translate into price inflation. Suppose the labor market is in equilibrium and if labour union of a particular sector demands higher compensation, given price flexibility and labor mobility, the demand for labour of that particular sector would be dampened. This excess supply of labour may migrate to other sectors, thus depress wages in these sectors of the labour market. Thus, wage inflation in some sectors of the labour market does not necessarily imply an increase in price inflation.

straint, there is likely to be a trade-off between prices and output. Thus, income may take a positive sign.³²

The Fisher equation, a pillar of neo-classical monetary theory, states that the expected real rate of interest (p^e) is the nominal rate (i) less the expected rate of inflation (Π^e).

$$p^e = i - \Pi^e$$

In the long run, if we assume that $\Pi^e = \Pi$, then the correlation between the real rate and nominal interest rate is zero. As such, a one percentage-point increase in nominal interest rate would lead to similar increase in inflation. A weaker assumption would be that the real rate is random. In this case, there would still be a one-to-one relationship between nominal interest rate and inflation. This is reflective of the situation where price setters take into account the ex-post Fisher effect³³ resulting in inflation persistence without requiring additional price stickiness assumption. In another words, higher nominal interest rates could be transmitted to higher cost by price setters.

IV. Estimation Results³⁴

The purpose of this section is to study the impact of money supply, exchange rate, and economic growth on inflation. In this exercise, a simple Vector-Auto Regression (VAR) estimation is chosen for its simplicity as well as it been a useful tool for analysing the dynamic behaviour amongst the various macroeconomic variables. Following equation 8, a VAR

32. In the discrete time version of the rational staggered-contract model, prices are positively related to output (see Chandha and et al, 1992).

33. The ex-post Fisher effect implies that the relationship between nominal interest rates and realized inflation.

34. An important caveat is that the relationships among the variables may be distorted for countries that shifted from exchange rate targeting to inflation targeting. However if the VARs estimated are stable, this issue may not be a big concern.

Chart 3: Inverse Roots of AR Characteristic Polynomial

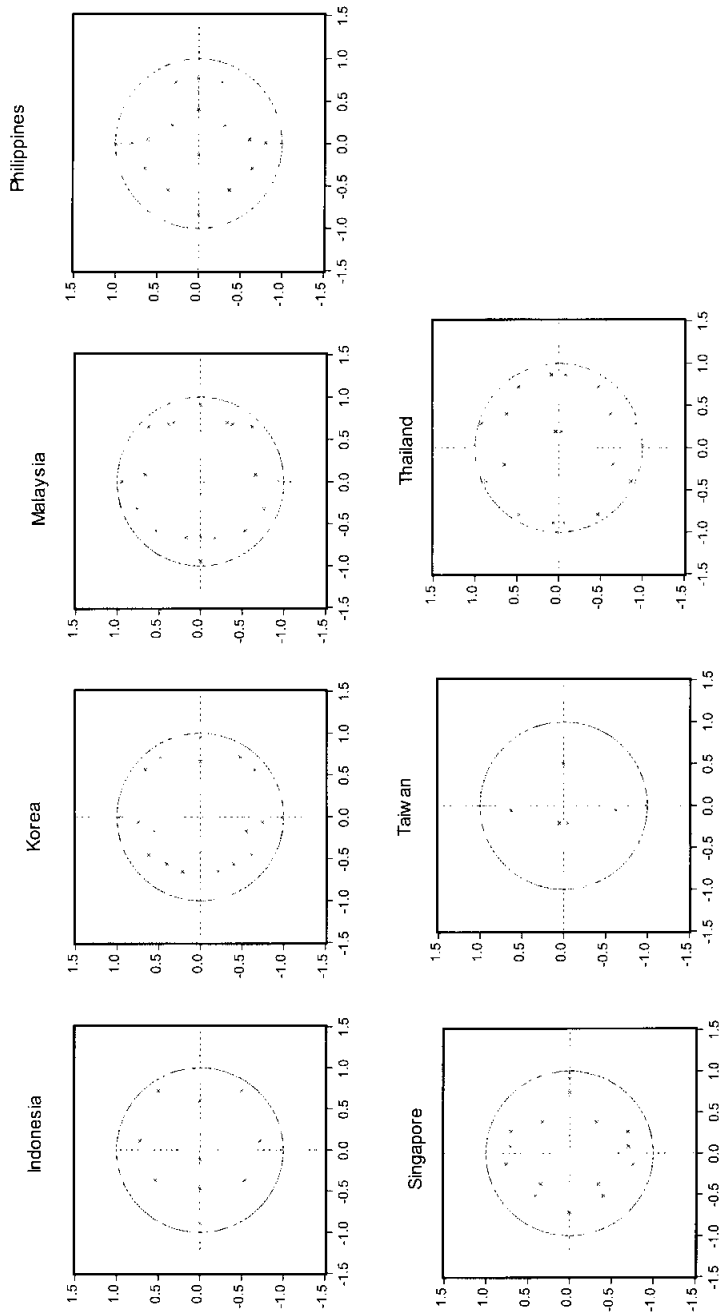
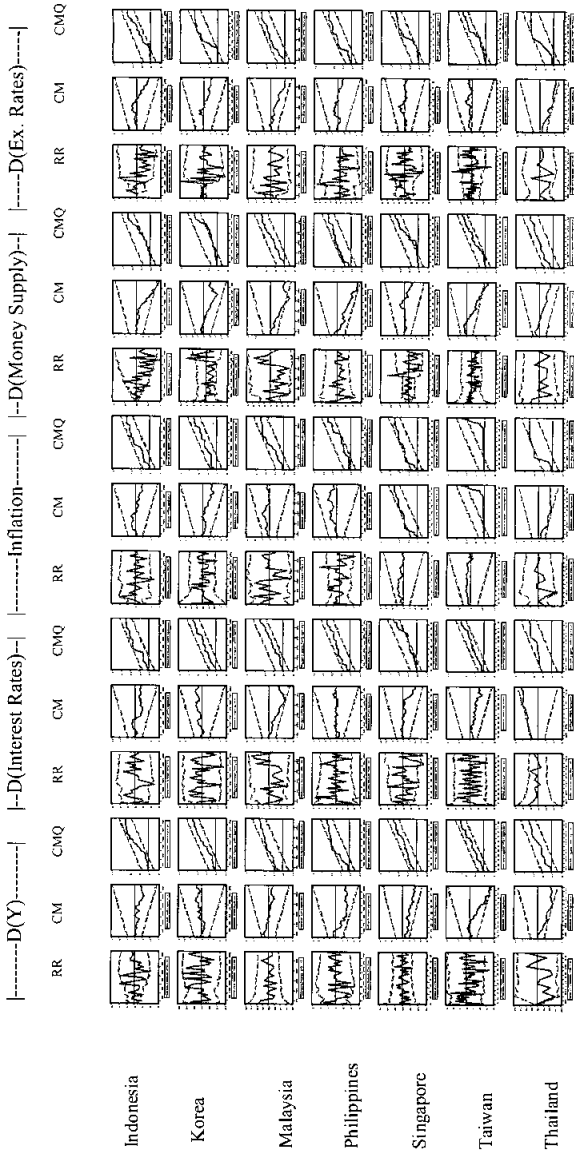
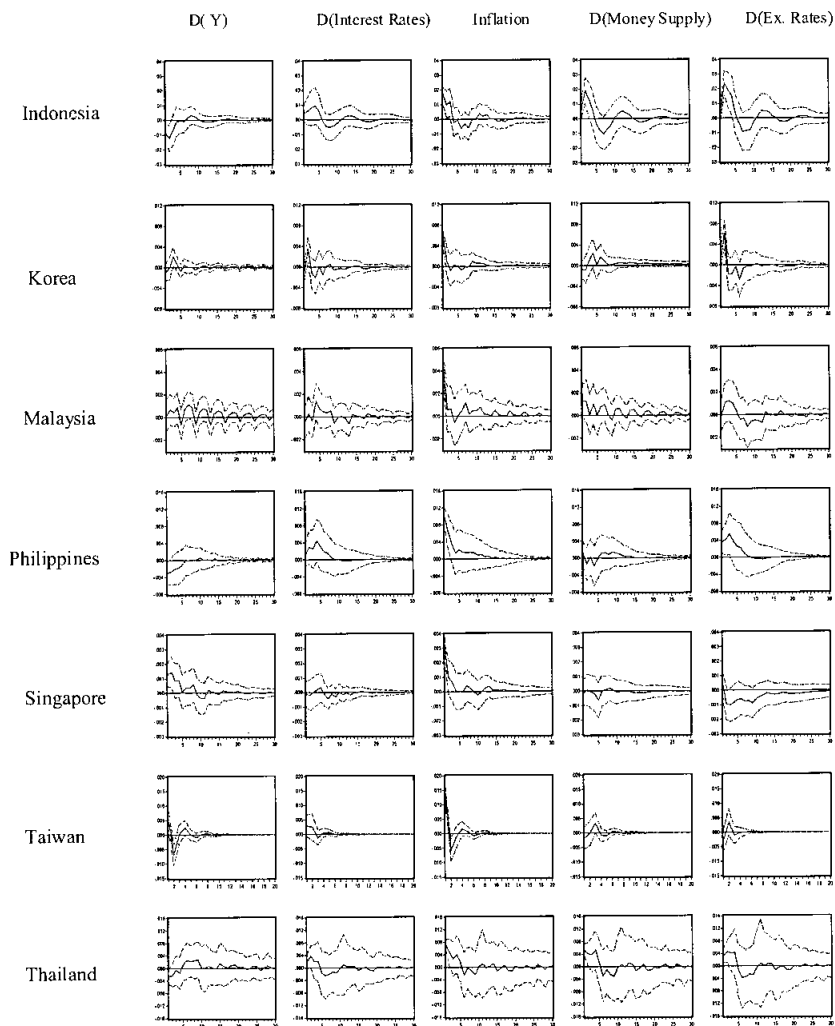


Chart 4: Stability Tests for VAR



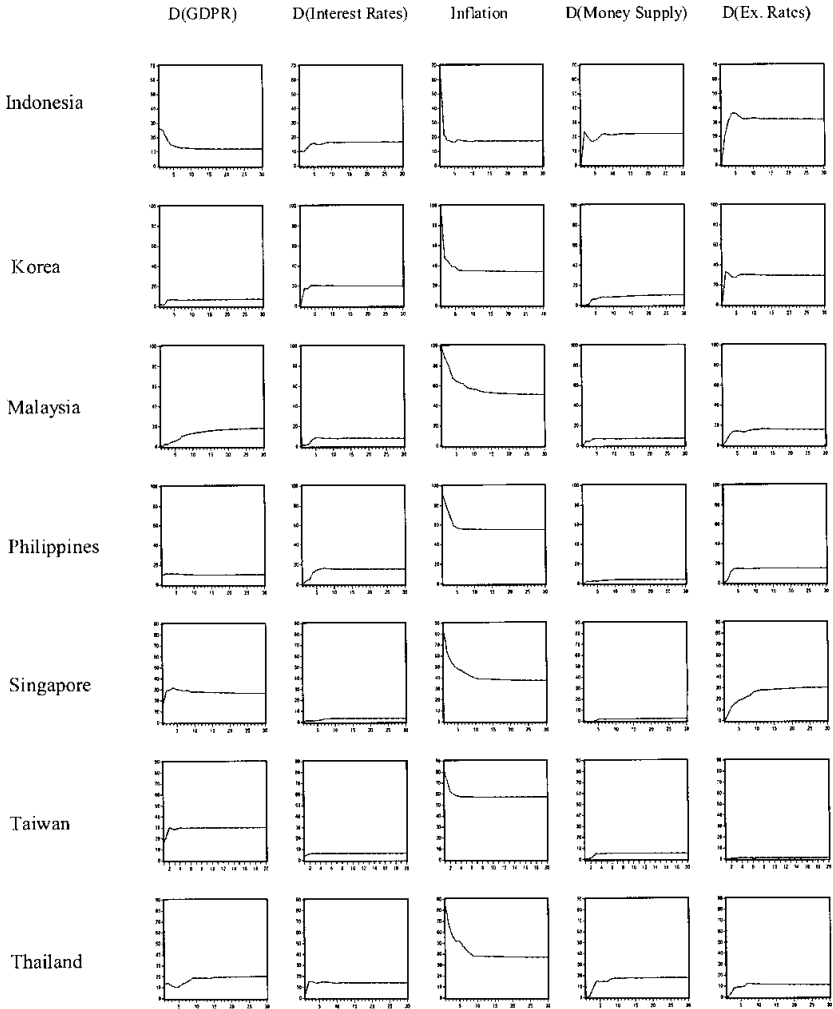
RR: Recursive Residuals (± 2 S.E), CM=CUSUM Tests (5% significance), CMQ= CUSUM Square Tests (5 Significance)
 D(.) first difference, Y= Real GDP, Ex. Rate=Exchange Rates

Chart 5: Response of Inflation to Generalised One S.D Innovations (+/- 2 S.E.)



D(.) first difference, Y=Real GDP, Ex. Rate=Exchange rate

Chart 6: Variance Decomposition of Inflation (%)



estimation was done using both endogenous and exogenous variables.³⁵ The endogenous variables are consumer price index (CPI), real Gross Domestic Product³⁶ (Y) interest rates (I) money Supply (M) and bilateral viz~a-viz US dollar exchange rate (e).³⁷ The exogenous variable, a measure of cost factor is the average oil price index (oil_p). The goods-sector series are ordered before the financial series.³⁸

All variables are estimated in logs and in first differences.³⁹ The lag length is determined by either the AIC or the SC tests. Should both tests showed conflicting significant lags, the most parsimonious lag among the two tests is chosen. The stability test of CUSUM, CUSUMSQ, recursive residuals and the AR roots tables are explored on all the estimated equations. Generally, the stability tests reveal that the estimated VARs are stable (see chart 3 and 4).

By examining the impulse response functions (see Chart 5),⁴⁰ it is noted that a positive shock to money supply seems to have some positive effects in Indonesia, Korea, Malaysia, Taiwan and Thailand but there appears to be some lags in Indonesia, Korea and Taiwan. In the Philippines, even after a lag of more than 20 quarters, there is hardly any significant

35. Quarterly data is used for the estimation. Sample size is 1990-2002.4 except for Indonesia (1993.1) and Thailand (1994.1) Data sources are from both CEIC and the IFS statistics. Eview program is used for all estimation.

36. As it is difficult to estimate potential GDP, real GDP growth is used instead.

37. An increase represents depreciation. Following Mihaljek and Klau (2001), bilateral exchange rate is used. They argue that since nominal effective rates are poorly understood, signal from exchange rate variable to inflation is like to come from key bilateral exchange rate than nominal effective rates.

38. See Orden D., and Fisher L.A.(1993). We also order the exchange rate last as in Peersman and Smets (2001).

39. As interest rates are likely to be stationary of order~(0), to include interest rate in the analysis, the first difference of all the variables, (including interest rates) are used to ensure the errors are stationarity.

40. Pesaran and Shin (1998) construct the generalized impulses based on an orthogonal set of innovations that does not depend on the VAR ordering. The generalized impulse responses from an innovation to the j-th variable are derived by applying a variable specific Cholesky factor computed with the j-th variable at the top of the Cholesky ordering.

impact.⁴¹ However, it is noted that in general, these effects are short-term in nature and have no lasting effects. For example, money supply shocks take around 1-4 quarters to dissipate.⁴²

As for the interest rate variables, in some SEACEN countries, it seems that price responds positively to a shock in interest rate while for others the shocks are not significant. This apparent price puzzle was well-documented by Sims (1992) who argued that the price puzzle can be explained by the fact that the authorities did systematically respond to higher present and expected inflation by raising interest rates but by not 'large' enough to prevent price from rising.⁴³ Another possible explanation is that while interest rate may trend up, liquidity remains ample leading to a build-up of inflationary pressure.

As for the real output shocks, prices appear to react positively to a shock in real output in Korea, Malaysia, and Singapore.⁴⁴ In Taiwan, output shocks caused an initial increase in the price level but turned negative in the second quarter. In Indonesia, Philippines and Thailand, output shocks initially led to a decline in price but with no medium-to-long term effect.

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41. As pointed out by Bangko Sentral ng Pilipinas, some studies indicate that a shorter lag effect of between 5-7 quarters for the Philippines.
 42. This is in line with the studies by Mohanty and Klau (2001) and Monero and Glick (2001). However, they also note that money supply may still possess useful information content if the shocks to the money supply are sufficiently large.
 43. From the impulse response functions, while for some countries, a shock to inflation does have some significant positive effect on interest rates, it appears that nominal interest rates did not rise more than the inflation rate following a shock to inflation. However, it is also possible that the VARs do not adequately capture the forward-looking behaviour of the central banks.
 44. While we do not have sufficient data on wages, it is likely rapid escalation of wages could result in a vicious cycle of high inflationary expectation as a result of rapid economic growth. It is reported by member banks that inflation is also associated closely with an increase in civil servants or minimum wage increase. In general, wage increase not associated with productivity was one of the main reasons for the increase in inflation. Increase in labour cost could lead to substantial erosion of price competitiveness. While some Keynesian type of rigidities such as labour shortage existed, wage increase was not excessive in the SEACEN countries in the 1990s. For example, in Thailand, during the years of rapid economic growth, minimum wage in nominal terms rose by only 7 percent during 1985-1995 (Bank of Thailand, Annual Report).

In all cases, except for Malaysia and Taiwan,⁴⁵ it is evident that a depreciation of the exchange rate causes the prices to increase. The shocks appear to last up to 5 quarters in Indonesia while for other countries it ranges from 1-3 quarters. The effect is almost instantaneous in the Philippines, Singapore and Thailand.

By examining the variance decomposition (see chart 6), it appears that innovations in the prices explain a large fraction in all countries except Indonesia. For example after eight quarters, innovations in prices explain around 35 percent in Korea, 59 percent in Malaysia, 56 percent in the Philippines, 35 percent in Singapore, 57 percent in Taiwan and 40 percent in Thailand. Compared to other countries, in Indonesia, it does appear exchange rate and money supply are important variables in explaining prices.⁴⁶ Up to 30 quarters, innovations to money supply and exchange rate still explain around 22 percent and 32 percent respectively of the variance in prices. It is also noted that during this period, except for Taiwan and Thailand, innovations to the exchange rate appear to contribute relatively more than money supply. It does appear that the direct-pass-through effects of the exchange rate is quite large in Indonesia but much less significant in Taiwan and Thailand.⁴⁷

45. With the adjustment and stabilization package, Indonesia, Korea and Thailand were characterized by a more transparent floating exchange rate and monetary policy. As for Malaysia, except for the exchange rate, most of the quantity aspects of the capital control have been replaced via the price channel effect. As for Taiwan, this could be due to lower inflation expectation as inflation rate in Taiwan was historically low in the 1990's.

46. Song O.H (2003).

47. Taylor (2000,b) offers explanation why the pass-through effects of the exchange rate might differ across countries. He argues that in an environment of low volatility of inflation, firms are not able to easily mark up the pass-through effect to their own prices. See also Campa and Goldberg (2001). Similarly, in Buddhari and Chensavasdijai (2003), they argue that in Thailand, the reasons for the weak exchange rate pass-through include changing in firm's pricing strategy as well as lower inflation expectations.

V. Policy Implications

While the VAR analysis is subject to many limitations, in general, we could conclude that:

- Prices do not appear to immediately respond to monetary shocks. For cases where the effect is instantaneous, it appears that the effect also dissipate almost immediately. Overall, it does indicate that the impact of monetary expansion on prices has become less predictable.⁴⁸
- There is little doubt that external shocks have tremendous impact on the domestic economies. As SEACEN economies are very open and rely heavily on the external sector, exchange rate is an important determinant of price stability.⁴⁹ However, except for Singapore, the exchange rate was never explicitly used to control inflation. It is interesting to note that the Monetary Authority of Singapore (MAS) reported that in some years following substantial appreciation of the Singapore dollar, the contribution of imported inflation to overall inflation was negative.
- As for interest rates, it appears that interest rates have a cost-push impact on inflation. An increase in interest rates could translate into higher cost, leading to a markup of goods and services. As noted by Sims (1992), it appears that member countries may have to increase interest rate by a greater margin to bring inflation down. However, as mentioned earlier, following financial liberalisation, excessive capital inflows have made managing inflation arduous as increases in interest rate per se to manage inflation leads to more capital inflows as shown in the case of Malaysia. It is also interesting to note that

48. Compared to previous inflation study by SEACEN.

49. As noted by McCauley (2001) the more open the economy, the greater is the effect of exchange rate on price in relation to other macroeconomic variables. For economies that rely heavily on the external sector, increase in import prices and prices of raw materials are important determinants.

following the financial crisis, Indonesia did manage to bring inflation down but subsequently interest rate rose as high as 70 percent before settling down to between 10 and 15 percent.⁵⁰

- It is also noted that in some countries, an increase in real output growth puts pressure on the domestic economy. It appears there are some kind of structural rigidity in these economies. On the other hand, in some countries, real output growth is not inconsistent with low rates of inflation.

VI. Conclusion

Maintaining some sort of monetary management, such as those required by the IMF programme may be a good option in hyperinflation or rapid inflation economies but in a low inflationary environment, the growth of the money supply may not be that appropriate a target. Furthermore, it is apparent that monetary targeting may not be viable in a liberalised financial environment.⁵¹ Large capital inflows together with rapid financial innovations and globalisation of the financial markets may distort the relationship between monetary aggregates on one hand and output and inflation on the other. Furthermore, monetary stability depends on the degree of commitment to the target of monetary policy pursued by the central bank, as well as the sine-qua-non of a prudent fiscal policy.⁵² SEACEN countries did use complementary prudent fiscal policy to manage inflation. For example, in Malaysia during the boom years and Mongolia during the transition periods.

50. Bank Indonesia had difficulties controlling the monetary based without creating pressure on interest rates (Alamsyah et al., 2001).

51. On the other hand, although liberalization has resulted in policy dilemma, competition and deregulation were enhanced through liberalization resulting in lowering prices. The SEACEN region, in particular AFTA (ASEAN Free Trade Area) through its multilateral and bilateral trade is promoting inter-regional trade. In AFTA in which seven SEACEN countries are members, AFTA has continued to be for deepening of economic integration and hence expanding markets and lowering production costs through economic of scale.

53. Mundell (2000).

While the era of managed exchange rate in the 1990's did provide SEACEN open economies with an effective nominal anchor, it does appear that exchange rate depreciation are associated with subsequent higher inflation.⁵³ The direct-pass-through effects of the exchange rate are either relatively large or spontaneous. This is an important consideration as inflation can become quickly entrenched into expectations. However, in recent years, as inflation and the capacity utilisation rate were rather low, any mild external shocks, such as an increase in oil prices would not have too much feedback to core inflation.

In many instances, in the SEACEN countries, inflation is caused by supply shocks. These shocks tend to be unpredictable and could overwhelm the role of demand side factors in the inflationary process. For example, a shock to food supply due to adverse weather conditions such as droughts and floods, compounded by lack of cost effective and extensive distribution networks can escalate regional prices.⁵⁴ An effective method to deal with increased food prices is by implementing price control. For social reasons, essential commodities, such as rice and sugar, are often under price control regulation to ensure that the entire population has access to them for the same quality and acceptable prices.⁵⁵ Another effective way to eliminate food supply shocks is through the supply/production channel. This can be done by stepping up efforts to augment food supply by providing greater infrastructure support to the agricultural sector.⁵⁶

To conclude, there are many other issues surrounding the viability of an anti-inflationary programme regardless of whether it is an inflation targeting regime or not. How is the target going to be achieved and how long will it take? If the costs of reaching the desired inflation is prohibitively high, then evidently an alternative solution is needed. While SEACEN countries pursuing inflation targeting have in fact brought their inflation rates down, disinflation has also occurred in other SEACEN economies.

53. Gensberg (2003) also noted that exchange rate stability should be a feature of the overall objectives of any IT framework for economies that are relatively open.

54. Often, lack of facilities make yields dependent on weather conditions.

55. For example, in Thailand, administrative price accounts for around 22 percent of the CPI price index basket in 2002.

56. Bangko Sentral Ng Pilipinas website.

It is obvious that as the causes of inflation are multi-facet, central banks have to approach inflation management in a rather more holistic manner in order to be able to attain short-run stabilisation as well as long-term inflation goals.

References

1. Aiyagari R.S., Response to a Defence of Zero inflation, *Quarterly Review*, Federal Reserve Bank of Mineapolis, Spring 1991.
2. Alamsyah Halim, Charles Joseph, Juda Agung and Dossy Zulverdy, Towards Implementation Targeting in Indonesia, *Bulletin of Indonesia Economic Studies*, Vol. 37, No.3, 2001.
3. Annual Reports of SEACEN Member Banks, Various Issues.
4. ASEAN Secretariat, South East Asia, A Free Trade Area, 2002.
5. Asset Price Inflation and Control Measures in Selected SEACEN Countries, Guinigundo C. D. (Ed), The SEACEN Centre, *Staff Paper*, No.61, 2000.
6. Bank of Korea, Medium-term Inflation Target and Monetary Policy for 2004, *Quarterly Bulletin*, March 2004.
7. Barsky R., "The Fisher Hypothesis and the Forecastability and Persistence of Inflation", *Journal of Monetary Economics*, 1987.
8. Buddhari A., and Chensavasdijai V., Inflation Dynamics and its implications for Monetary Policy, paper presented in the Bank of Thailand Symposium, 2003.
9. Campa, J and Goldberg L., Exchange-rate pass-through into import prices: a macro or micro phenomenon?, Federal Reserve Bank of New York manuscript, July, 2001.
10. Chan IL Park, Transactions Demand for Money and The Inverse Relation between Inflation and Output: The Case of Korean Economy, *International Economic Journal*, Vol. 12, Number 1, Spring 1998.
11. Chandha B., Masson P., and Meredith G., Models of Inflation and the Costs of Disinflation, *Staff Paper*, Vol. 39, No.2, The International Monetary Fund, 1992.

12. Chibber A., Africa's Rising Inflation: Causes, Consequences, and Cures, *Working Paper*, The World Bank, February 1991.
13. Debelle G., The Case for Inflation Targeting in East Asian Countries, paper based on an earlier paper on "The Viability of Inflation Targeting for Emerging Market Economics., prepared for a Conference on "Financial Markets and Policies in East Asia", held at the Asia Pacific School of Economics and Management, Australian National University, 4-5 September 2000.
14. Debelle, G. and C. H. Lim., Preliminary Considerations of an Inflation Targeting Framework for the Philippines, *Working Paper 98/39*, International Monetary Fund, March 1998.
15. Dornbursch R., Lessons from Experiences with High Inflation *Economic Review*, The World Bank, No.1, Vol.6, January 1992.
16. Dubravko M.D., and Klau M., A Note on the Pass-through from Exchange Rate and Foreign Price Changes to Inflation in Selected Emerging Market Economies, *BIS Paper*, No.8, Bank for International Settlement, 2001.
17. Feldstein M.S., Capital Income Taxes and Benefit of Price Stability, *NBER Working Paper*, No. 6200, National Bureau of Economic Research, Massachusetts Ave., Cambridge, 1997.
18. Friedman M., The Optimal Quantity of Money and Other Essays, Chccagom Aidine, 1969.
19. Genberg H., Monetary Policy in East Asia (and Elsewhere): Does Targeting Inflation Require 'Inflation Targeting', *Working Paper No.3/2002*, Graduate Institute of International Studies, Hong Kong Institute for Monetary Research, January 2002.
20. Goldsbrough D., and Zaidi I., Monetary Policy in the Philippines During Periods of Financial Crisis and Changes in Exchange Rate Regime: Targets, Instruments and the Instability of Money Demand, *Working Paper 89/98*, International Monetary Fund, 1989.

21. Greenspan A., Congressional Record, United States Senate, 19 February 1993, p.21.
22. Hamann A.J., and Prati A., Beating Inflation, The importance of Luck, Timing and Political Institutions, *Finance and Development*, The International Monetary Fund, June 2003.
23. Hostland D., Changes in the Inflation Process in Canada: Evidence and Implications, *Working Paper* 95-5, Bank of Canada, May 1995.
24. International Financial Statistics, International Monetary Fund, December 2003.
25. Jung J.Y., and Vincent C.S. Lim, Impact of Stock Market on Monetary Policy in *Staff Paper* No.67, The SEACEN Countries, 2002.
26. Khan M.S., Monetary Shocks and the Dynamics of Inflation, *Staff Paper*, Vol.27, No.2, The International Monetary Fund, 1980.
27. Lucas R.E., Macroeconomic Priorities, *American Economic Review*, Vol.93, 2003.
28. Lucas R.E., Inflation and Welfare, *Econometrica*, Vol.67, 2000.
29. McCauley R., Setting Policy in East Asia, Goals, Development and Institutions, *RBA Annual Conference Volume* 2001-02, Reserve Bank of Australia, 2001.
30. Mishkin F.S., Issues in Inflation Targeting in Price Stability and the Long Run Target for Monetary Policy, Bank of Canada, 2001.
31. Mohanty M.S., and Klau M., What Determines Inflation in Emerging Market Economies? *BIS Paper* No.8, Bank for International Settlement, 2001.
32. Monero R., and Glick R., Is Money Still Useful for Policy in East Asia,- *Working Paper* No. PB 01-12, Federal Reserve Bank of San Francisco 2001.

33. Moser C.G., The Main Determinants of Inflation In Nigeria, Working Paper 94/76, International Monetary Fund, June 1994.
34. Mundell R., Indonesia's Plans for Stability, Columbia University, 1 September 2000.
35. Orden D., and Fisher L.A., Financial Deregulation and the Dynamics of Money, Prices, and Output in New Zealand and Australia, *Journal of Money, Credit, and Banking*, Vol.25, No.2, May 1993.
36. Peersman G., and Smets F., The Monetary Transmission Mechanism in the Euro Area: more evidence from VAR analysis, December 2001, *Working Paper* No. 91, European Central Bank, 2001.
37. Pesaran M.H., and Shin Y., Generalised Impulse Response Analysis in Linear Multivariate Models, *Economic Letters*, 58, 1998.
38. Phelps E.S., Inflation in the Theory of Public Finance, *Swedish Journal of Economics*. March 1973.
39. Poole W., Is Inflation too low?, *FRBST Review*, 81 (4), Federal Reserve Bank of St. Louis ,1999.
40. Sims C., Interpreting the Macroeconomic Time Series Facts: The Effects of Money Supply, *European Economic Review*, 36, June 1992.
41. Sinclair P., The Optimal Rate of Inflation: An Academic Perspective, 2003 <http://www.economics.bham.ac.uk/sinclair/Inflation.pdf>.
42. Song O.H., Efficacy of Monetary Transmission Mechanism, Experiences of the SEACEN Centre, The SEACEN Centre, 2003.
43. Stone, M., Financial Reintermediation and New Challenges to Monetary Policy, *Background Paper*, SM/95/253, International Monetary Fund, 1995.
44. Taylor, J.,B (a) Low inflation, pass-through and the pricing power of firms., *European Economic Review*, June, 2000.

45. Taylor, J.,B.(b) Low Inflation, Deflation, and Policies for Future Price Stability, A keynote Speech, paper prepared for the ninth International Conference, 'The Role of Monetary Policy Under Low Inflation, Deflation Shocks and their Policy responses, sponsored by the Institute for Monetary And Economic Studies, July 3-4, 2000, Bank of Japan, 2000.
46. The World Bank, Managing Capital Flows in East Asia, 1996.
47. Yu M., Inflation Targeting in Korea: Tentative Evaluation and Policy Evaluation, in Inflation Targeting, Theories, Empirical Models and Implementation in Pacific Basin Economies, Proceeding of the 14th Pacific Basin Central Bank Conference, November 15-18, 2001, Seoul, Korea, The Bank of Korea, 2001.
48. Websites of various SEACEN member banks.
49. Wood G., Money and Independent Central Bank, *Banking World*, October 1993.

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