UNIVERSITI PUTRA MALAYSIA

THE TRANSMISSION MECHANISMS OF INFLATION: AN EMPIRICAL STUDY ON THE ASEAN ECONOMIES

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THE TRANSMISSION MECHANISMS OF INFLATION: AN EMPIRICAL STUDY ON THE ASEAN ECONOMIES

By

CHENG MING YU

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SPECIALLY DEDICATED TO :

MY LOVE MOM AND DAD

& MY DEAR SISTERS:
CHAIM YU, WEN YU, YEE YAR AND HOU YEA
& MY BROTHERS-IN-LAW:
CHEN THONG AND SIM GUAN

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THE TRANSMISSION MECHANISMS OF INFLATION: AN EMPIRICAL STUDY ON THE ASEAN ECONOMIES

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Maintaining low and stable inflation has been the primary goal of most countries, particularly for the fast growing developing countries. Vast great inflation theories, from Classical, Keynesian, Monetary to Structural, carrying different banners and offering different evidence on the causes of inflation. It is of utmost importance to correctly identify the causes of inflation in each economic setting as wrong diagnosis of the nature of the problem will lead to the application of inappropriate cures that might hurt the economy.

This study, whenever possible, takes the effort to capture the ideas of major inflation theories in a single dynamic inflation model. An eleven-equation set up with eleven variables in each equation is used for each five ASEAN countries. The ASEAN in this study refers to five original members of ASEAN, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand. The primary mission of this study is to analyze the relative importance of factors that significantly contributed to inflation in each of the ASEAN country. This study also aimed to examine the existence of international as well as intra-ASEAN transmission of inflation to these countries.

The objectives of the study were achieved by the estimation of Vector Error Correction Model (VECM) and the analysis of impulse response function as well as variance decomposition for each country. The data for the study consists of quarterly observation from 1973:I to 1997:II.

The results of the study revealed that for the ASEAN economies that showed high and stable economic growth for a sustained period, namely Singapore and Malaysia and which had adopted consistent policy in the country, tended to have relatively low and stable inflation rates. Due to the openness of the countries, external factors such as the rest of the world's inflation rates and the rest of the ASEAN's inflation as well as the exchange rate variable are relatively more important in explaining inflation in these two countries. On the other hand, Indonesia and the Philippines which were burdened by huge foreign debts and had took up inconsistent policy mix to spur the growth in the economy had generally experienced high and variable inflation rates. External and internal factors are important in generating inflation in these two countries. In Thailand, the inflationary analysis was somehow unsteady. The findings could be attributed to the structural shifts arising partly from trade and financial liberalisation in the country, particularly at the end of 1980an.

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

**MEKANISASI PENGANTARAN INFLASI:
SATU KAJIAN EMPIRIKAL BAGI EKONOMI-EKONOMI ASEAN**

Oleh

CHENG MING YU

Mei 1999

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Mengekalkan inflasi pada tahap yang rendah dan stabil adalah tujuan asas bagi kebanyakan negara, terutamanya bagi negara yang pesat membangun. Terdapat pelbagai jenis teori inflasi, dari Klasikal, Keynesian, Kewangan ke Struktur, membawa bana yang berlainan dan menawarkan bukit yang belainan bagi sebab-sebab berlakunya inflasi. Usaha-usaha bagi mengesahkan asas inflasi dengan betul bagi setiap ekonomi adalah amat penting kerana diagnosi yang salah tentang asas masalah inflasi akan membimbing kepada penggunaan cara pembetulan yang tidak sesuai yang mungkin mengancam pembangunan ekonomi negara.

Kajian ini, apabila sesuai, mengambil usaha untuk merangkumi idea-idea inflasi utama ke dalam satu model inflasi dinamik. Satu sistem yang terdiri daripada sebelas persamaan dengan sebelas pembolehubah dalam setiap persamaan telah dibentuk bagi setiap lima negara ASEAN. ASEAN dalam kajian ini merujuk kepada lima ahli asas, iaitu Indonesia, Malaysia, Filipina, Singapura dan Negeri Thai. Misi

utama kajian ini adalah untuk menganalisa kepentingan relatif faktor-faktor yang menyumbang kepada inflasi di setiap negara ASEAN. Kajian ini juga bertujuan untuk memeriksa kewujudan pengaruh-pengaruh antarabangsa dan ASEAN di negara-negara ini.

Objektif-objektic kajian ini dicapai dengan menganalisa VECM (Vector Error Correction Model) dan fungsi tindakbalas impuls dan juga dekomposasi variasi. Data yang digunakan terdiri daripada data suku tahunan dari 1973:I ke 1997:II.

Keputusan analisa menunjukkan bahawa negara ASEAN yang mengalami pembangunan yang pesat dan stabil untuk jangka masa yang panjang serta mengamalkan polisi yang konsisten, iaitu Singapura dan Malaysia, cenderung mempunyai kadar inflasi yand lebih rendah and stabil. Disebabkan oleh kebukaan ekonomi bagi kedua-dua negara ini, faktor luaran seperti inflasi dunia dan inflasi negara ASEAN lain dan kadar tukaran wang adalah lebih penting dalam menerangkan inflasi di kedua-dua negara ini. Di sebaliknya, bagi negara yang dibebankan dengan hutang luaran yang tinggi dan telah mengamalkan polisi yang tidak konsisten untuk merangsangkan pembangunan negara, Indonesia dan Filipina secara keseluruhannya mengalami kadar inflasi yang lebih tinggi dan tidak stabil. Faktor-faktor luaran dan dalaman adalah sama-sama penting bagi negara-negara ini. Di Thailand, analisa inflasi adalah tidak stabil. Ini adalah disebabkan oleh pembangunan ekonomi yang tidak stabil akibat daripada peralihan struktur pada akhiran 1980an.

CHAPTER I

OVERVIEW OF THE STUDY

Introduction

The Geographic Coverage

The ASEAN[1] is currently comprising of ten countries, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei and lately of Vietnam, Myanmar, Laos and Cambodia which are all on the southeastern rim of Asia. However, the focus of this study will be on the major, fast growing and dynamic developing countries in the ASEAN, which consists of the economies of Indonesia, Malaysia, the Philippines, Singapore and Thailand. Other members of ASEAN will not be considered because of the lack of economical statistics and/or prominent economics performance during the period of study. For the sake of convenience and consistency, unless otherwise stated, the "ASEAN" in this study refers to these five main economies in ASEAN, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand.

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[1] The ASEAN (Association of Southeast Asian Nations) was establish in 1967 to enhance the cooperation among member nations.

The Study of the ASEAN Economies

The ASEAN economies have been the centre of the study because these economies have undergone dynamic changes in their economic structure as well as pattern of economic growth for the last three decades. Also, these countries cover a fairly large range of average inflation rates in the sample period, which varies from a low level of four per cent in Singapore and Malaysia to over ten per cent in the Philippines and Indonesia.

Several ASEAN economies have displayed strong capacity of dynamic growth, with many having experienced high growth for a sustained period, such as Singapore and Malaysia, which have continually maintained an average growth rate of over seven per cent for the period between late of 1980s and mid-1990s. In general, the growth per capita GDP averaged over four per cent in the ASEAN countries between 1970 and 1996, compared with less than two per cent in other developing economies and 2.6 per cent among the industrial countries (World Development Report, 1996).

Rapid and significant increased in the interdependency among the ASEAN economies and the rest of the world in the form of trade, investment, capital and technology co-operation have led to the strong growth performance in the region. Efforts to improve the macroeconomics environment in addition to trade and financial liberalisation have brought about a closer link between these ASEAN countries and also the linkages between ASEAN with the rest of the world. As a consequence, domestic economical policies have become more interrelated with external sector policies. Therefore, it is more appropriate to analyse the domestic macroeconomics problems in these countries in the context of open economy instead of closed and isolated economy as had been done in most studies.

The exemplary performance of many ASEAN economies for a sustained period has been the basis for a large and varied literature, much of which explores reasons for the high growth that draws lessons for other countries that would like to follow suit. A surprising aspect of this literature is the lack of study on the maturation of the ASEAN miracle. The sustainability of the ASEAN miracle is being questioned recently as the region's economies are buffeted by problems. The sharp export slowdown in 1996, financial woes in Indonesia and Thailand, and the very recent currency turmoil and growth crisis affecting all ASEAN countries raised the question of the sustainability of the rapid growth in the ASEAN economies.

It is now widely accepted that a stable macroeconomics framework (which generally means low inflation) is a necessary condition for sustainable economic growth. Much striking empirical evidence supports the view that a stable macroeconomics framework is conducive to growth. In Latin America, the restoration of budget discipline and the reduction of inflation preceded the recovery of economic growth in Chile and Mexico. On the contrary, the lasting growth crisis in Brazil was coincides with high inflation continued macroeconomics instability (Fischer, S., 1993). All countries today, whether they are developed or developing, faced an inflationary pressure. However, inflation is always a problem that mostly concerned economists and policy makers in the fast growing developing economies, especially the ASEAN economies, in spite of the fact that all this while, the region has managed the inflationary well. As a matter of fact, amidst the obvious strains from heated economic development, the ASEAN countries have been able to maintain single or low double-digit inflation rates in average in the sample period. The worry over inflation is due primarily to the general view that generating inflation is easier than stopping it and also, maintaining low inflation is less costly than regaining it once it has surged. There is, therefore, a good reason and timely to examine the issue of inflation in this region. Better understanding of the transmission mechanisms of inflation in this region provides a better understanding of the origin as well as the generation of inflation, and hence promote a more proactive policy to curb inflation.

The Study of Inflation

Inflation widely viewed as a social disaster, although the degree of its seriousness is debatable. The effects of inflation inflation. When asked about the greatest problem confronting them, most people refer to inflation unemployment and other domestic problems (Katona, 1983).

Virtually, why do we so worry about inflation? The reason why inflation been the focus of discussion is that its root cause has not really been tackled so far. Theoretical and empirical researches on the causes and the processes of inflation occupied a prominent place in macroeconomics literature. Despite the enormous growth and diversity of inflation

causes of inflation remains elusive. This probably due to the fact that inflation appears to be an empirically observable phenomenon that varies greatly both across countries and over time. Apart from that, the complexity of the analysis increased as we venture beyond the domain of closed economies, since there arises a need to specify clearly the international transmission of price and other macroeconomics disturbances that might affect domestic prices.

In the real world, prices do not rise as if lifted by an invisible hand. They are raised by formal and explicit managerial decision made by a few influential groups of people. In explaining the nature of inflationary process, demand and cost are always thought as the roots in transmitting inflation while the growth of money supply is the main reason for inflation

may not be similar everywhere. It may be different under different government policies, different economic environment or different stages of a nation's economic and social development. Therefore, any attempt to unravel the causal factors in the generation and propagation of inflation is bound to open a "paradox's box" of rival theories.

For policy makers, inflation is always a problem that needs to be taken care of. Yet, government attempts to control inflation The failure may be attributed to the wrong diagnosis of the nature of the problem, leading to the application of inappropriate cures. Essentially, economists have advanced a variety of diagnoses of the causes of inflation, which have provided the base for various policy prescriptions. There are basically two schools of thought. First, the causes of inflation are to be found at the world rather than at the individual economy level. Henceforth, to handle the problem of inflation, it requires common and integrated international policies. Second, the causes of inflation should be sought within the particular structure of each individual economy and each country should adopt such policies as are appropriate to contain its own special inflationary pressures .

Concern about inflation comes forth also due to the fact that inflation, especially unanticipated inflation is detrimental. To the layperson, inflation shrunk in the value of money used for purchasing goods and services. For the society as a whole, inflation creates problems in the functioning of the economy. According to Davis (1991), the effects of inflation groups. The first kind of the adverse effect is the so called "menu costs" and "shoe leather costs". "Menu costs" are extra costs associated with repricing, including the costs of printing new menus or distributing new catalogues. The "shoe leather costs"

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[2] Refer Zis, G. (1993) "Inflation: an international monetary problem or a national social phenomenon" in *Inflation in Open Economies.*

refer to costs incurred as a result of more frequent move to banks. As a result of higher inflation

must go more often to bank to obtain cash by making withdrawals from savings accounts and other interest-paying assets. The inconvenience and loss of productive time that people suffer constitute the "shoe leather costs."

The other inflationary consequences as suggested by Davis included distortion on the allocation of resources and output, effect on the efficiency of the pricing system as a signalling device and effect on income distribution from savers (or creditors) to borrowers (or debtors) as well as effect on social and political stability. Unanticipated inflation contorts the price signals in the market and introduces noise into the system with the result that economic agents use up a lot of time and resources to cope with inflation. Thus a result of inflation is that the rate of growth of the natural level of output is reduced below what it would be in an inflation-free economy.

While a move towards equality is often reckoned necessary for the economic and political stability of many developing countries, especially the fast growing developing ASEAN countries, inflation worsens the income distribution pattern. At certain level, inflation puts a strain on the social order as it undercuts the perceived fairness and predictability of economic outcomes. Many empirical evidences have shown that inflation

countries, especially in the fast growing developing countries. A very recent incident of riots in Indonesia as a result of rising prices is the most concrete example to support the risk of inflation to the stability of a country.

In view of the damaging effects of inflation on the progress of an economy, maintaining low inflation has been the primary goal of most countries, especially for fast growing developing economies. Jarrett and Selody (1982) in a study on inflation found that a one per cent decline in inflation was associated with a permanent rise in productivity of 0.38 per cent in Canada. As productivity rises, so does standard of living, which is the ultimate goal of any economic policy. In addition, low inflation tends to coexist with low relative price variability and inflation uncertainty (Hess and Morris, 1996). Caporale and McKiernan (1997) by employing a GARCH model finds a positive and significant relationship between the level and variability of inflation in which high inflation leads to more variable inflation. An economy tends to functions better when aggregate prices, as measured by the CPI for example, are steady rather than volatile. This is for the reason that price stability allows economic decision-makers, including businesses, investors and consumer to better assess shifts in the demand and supply for individual goods. This, in turn, encourages a faster and more optimal allocation of scarce economic resources. On the other hand, price instability has disruptive effects on economic decisions. It forces businesses and individuals to spend time and money predicting future prices and hedging against unanticipated inflation. Because of inflation, economy tends to operate less efficiently. Feldstein (1983) found that a reduction in inflation of two percentages' points raises the level of

GDP by one per cent. As inflation falls, tax distortions stemming from higher inflation also fall, thus raising savings and hence investment and output.

However, not everyone is thinking that the harm done by inflation is so significant. Tobin (1972), for instance, has generally perceived that inflation is greatly exaggerated as a social evil. Several analysts contend that maintaining low inflation is too costly and the benefits too elusive (Krugman, 1996; Dornbusch and Fischer, 1991). Attempts to reduce the inflation rates, according to these authors, usually accompany by a reduction in the growth rate of nominal GDP, which is likely to cause a temporary drop in output and an increase in unemployment. Okun (1974) surveyed a variety of econometrics evidence and reached the pessimistic conclusion that the inflation process in the post-war United States is so inertia prone that the cumulative sacrifice of ten per cent of a year's GNP would be required to achieve a permanent one per cent point reduction in the inflation rate. Therefore, many economists do not regard the benefits of lower inflation as worth the sacrifice of lost output and jobs necessary to achieve it. The very different and contradicted opinions on the effects of inflation opened up a question for extended investigation.

Statement of Problem

Inflation has been considered as one of the major problem in the management of macroeconomy. It creates detrimental effects in the functioning of the economy. Yet, a precise identification of the underlying causes of inflation remains elusive so far