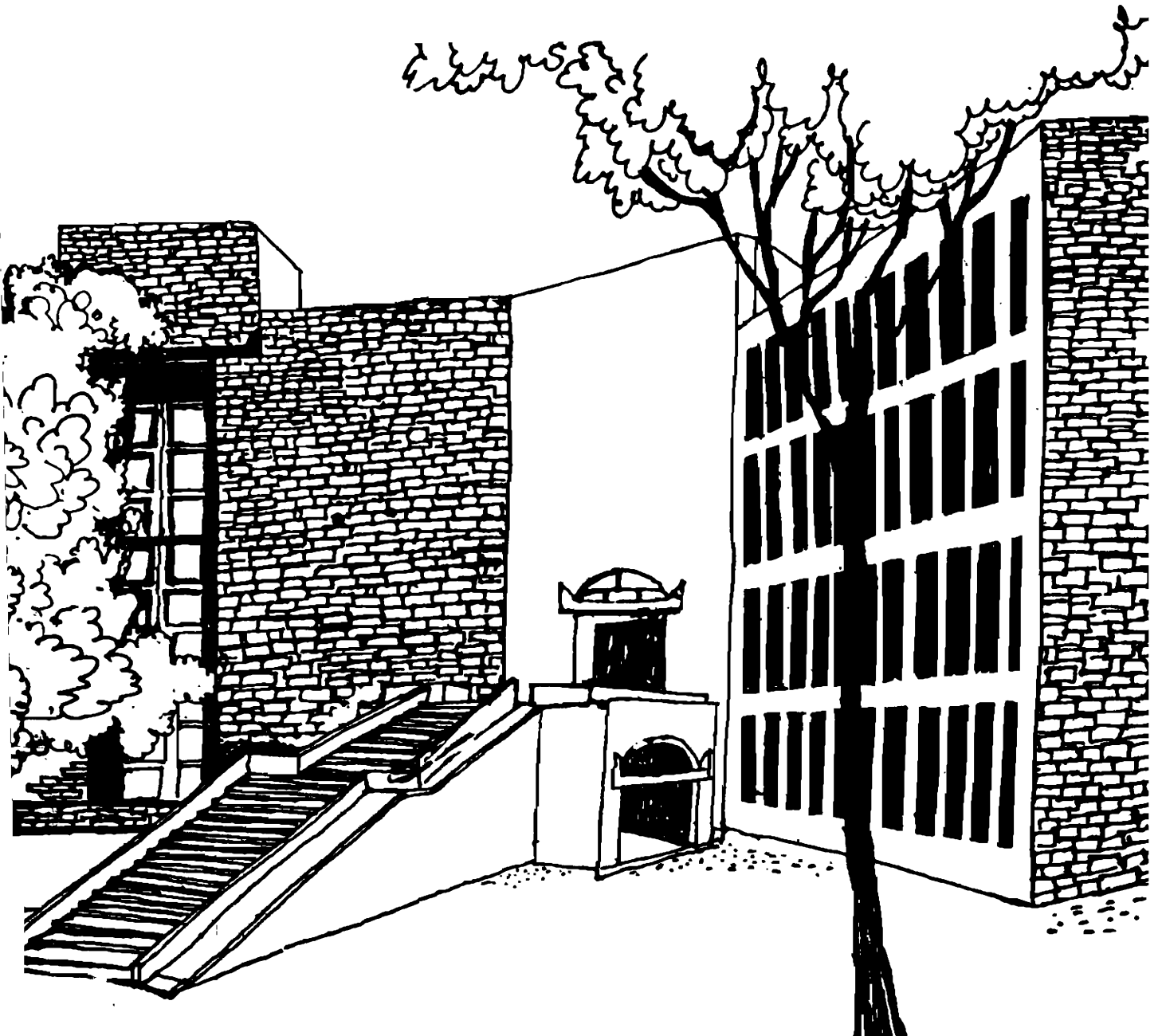# Working Paper

COMPARATIVE FINANCIAL SYSTEMS:
FINANCIAL LIBERALISATION, THE BLACK MARKET
EXCHANGE RATE AND DEMAND FOR MONEY IN
SOUTH KOREA, TAIWAN AND THAILAND

By

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ABSTRACT

Central to the unbridled economic success of the Pacific-Rim countries is their financial liberalisation from 1981 to 1990, their ratio of M2/GDP (a measure of the depth of the financial sector) is as large as the M2/GDP of the OECD economies. The Pacific-Rim countries have also been moving --*albeit* at different speed-- to liberalise their equity and bond markets and integrate them more closely into international financial markets. This paper first summarises the most essential aspects of the financial liberalisation and innovation processes in Thailand, Taiwan and South Korea. Second, it tests at various stages of financial liberalisation for an appropriate overall functional form of demand for money for each country, using the Box-Cox extended auto-regressive model with data from January 1970 through June 1989. Black market exchange rate is used in the model as a key variable, instead of a conventional variable of the official exchange rate. The empirical results confirm that real income, expected inflation and expected depreciation in the black market exchange rate are appropriate scale and opportunity cost variables in the long-run money demand function, especially for South Korea. In addition, depreciation in the black market exchange rate is found to be a negative effect on the demand for money in all cases, but there is no empirical evidence to indicate that the black market exchange rate influences the demand for money differently over the period before and during the on-going financial liberalisation process. Therefore, the Pacific-Rim countries in this study must carefully select an appropriate exchange rate policy to support their economic goals because (a) the black exchange rate is significant to their economies, and (b) neither a decline in the black market nor an alignment of the black market and official exchange rates will occur as long as the financial liberalisation has not reached maturity and/or exchange rate control still exists.

I Introduction

For more than a decade, the newly industrialised countries (NICs) of the Pacific-Rim, led by Hong Kong, Singapore, Taiwan and South Korea, have been recognised for their high rates of economic growth. With the gradual liberalisation of financial intermediaries and capital markets, each country's financial sector has evolved, playing a crucial role in that nation's and the region's economic success [Cole and Patrick (1986), Bae and Kim (1987), McKinnon (1989)]. Currently, the total market value of the region's common equities and bond issues accounts for approximately one-third of the world's total capital market value [Kim and Kim (1993)]. In addition, the increasing number of open- and closed-ended investment funds specialising in Asian equities demonstrate clearly the strategic importance of capital markets in this region for international investment decisions. Thus, the present and expected future capital inflows to and outflows from the Pacific-Rim countries are and will be substantial, and each country's exchange rate policy is vital.

In recent years, a number of studies have looked at the impact of foreign interest rates and expected currency depreciation on domestic demand for money in developing countries [Darrat and Arize (1990), Hassan (1992), Hassan et. al. (1993)]. However, the empirical evidence on this issue is inconclusive as to whether the impact of foreign interest rates and currency depreciation on domestic money demand is significant, and especially whether the results are directly attributable to the use of official exchange rates (usually pegged to major currencies) or black market exchange rates in calculating currency depreciation.

The purpose of this paper is two-fold: (a) to describe the financial liberalisation process of three of the NICs in the Pacific-Rim, viz., South Korea, Taiwan, and Thailand, where economic success of each one has been achieved in spite of differences from other NICs in terms of economic and financial systems and endowments of natural resources; and (b) using data from 1974 to 1989, to investigate empirically the determinants of the demand for money in South Korea, Taiwan and Thailand where financial liberalisation programmes have been introduced in the last ten years. Specifically, the paper will investigate whether depreciation of the black market exchange rate influences demand for money over the long run and if so, over what period -- before or during the on-going financial liberalisation process.

The study is organised in six sections. The second section briefly describes the financial liberalisation process in South Korea, Taiwan, and Thailand. The third section reviews the literature on the relationship between demand for money and black market exchange rates. The fourth section sets up the testing demand for money using black market exchange rate variable and includes descriptions of the data used. The empirical results of the model are explained in section five. Finally, the conclusion and policy implications are provided in the last section, including the areas for further research.

II FINANCIAL LIBERALISATION IN SOUTH KOREA, THAILAND AND TAIWAN

South Korea. In January, 1981, the Korean government announced a four-stage plan with a proposed time-table for the opening of the securities market in response to the changes in the domestic and world economy and international financial environment [Korea Stock Exchange (1992)]. The general thrust of the plan was to increase portfolio investment opportunities for foreign investors on a gradual basis. The major outline for internationalisation of the securities market included:

- Stage one (1981-1984), authorising international investment trusts and preparing for the opening of the securities market.

- Stage two (1985-1987), allowing foreigners to invest in Korean securities on a direct but limited basis.

- Stage three (1988-1990), gradually lifting restrictions on foreign investment and allowing foreign offerings by domestic corporations.

- Stage four (early 1990s), allowing domestic investors to invest in foreign securities.

As of 1992, stages one and two had been completed, and stages three and four were only partially implemented. The slow growth of the Korean economy during the last few years is considered to be one of the causes for the delays.

On January 3, 1992, the Korean stock market was opened to foreign investors for direct investment (stage two, proposed for 1985-87). To preclude the possibility of foreign encroachment into the management of Korean companies and to induce foreign investors to diversify their investments rather than focus on the shares of just a few listed companies, the opening of the market was carried out under specific limitations on holdings by individual foreigners and the total number of shares of any single company. To guarantee the safety of foreigners' investments, the repatriation of investment capital including dividends, interest, and capital gains is allowed as long as the funds are confirmed by a foreign exchange bank to be or to have been invested in authorised domestic stocks.

Furthermore, at present, selected domestic institutional investors are permitted to hold foreign currency securities (stage four). In particular, the securities companies may invest up to US$30 million in foreign securities markets, while those companies operating overseas securities businesses are permitted to invest up to US$50 million. Meanwhile, investment trust companies and insurance companies are allowed to hold up to US$10 million in foreign currency securities. If the investment trust companies conduct international business by issuing international trust units, they are allowed to invest up to US$30 million in foreign securities. The insurance companies are permitted to do the same if they have total assets exceeding 5 trillion won.

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During the past decade, the South Korean stock market has shown remarkable progress in its development and has significantly mobilised domestic savings for financing business investment [Kim (1982)]. Since 1980, the Korean Composite Stock Price Index (base of 100 in 1980) increased to a high of 1009 in 1989, fluctuated around the mid-600 level in 1992, and gradually increased to 800 in (November) 1993 [Korean Stock Exchange (1980-1993)]. The surge in stock prices, especially from 1985 to 1989, reflects an increase in personal savings resulting from recent economic progress and financial policies promoting the development of the stock market.

Thailand. Plans similar to South Korea for internationalisation, with Bangkok as an international financial centre at least on a regional level, have been implemented in recent years by the Thai government [Bangkok Bank Monthly Review (May 1990; September 1990; March 1991 and August 1991)]. However, no time frame for completing any specific part of the plans have been set. The idea of an international financial centre was initiated in the late 1980s after financial authorities recognised Thailand's position and saw the vital role it could play in this fast growing region. The financial centre which the government has had in mind is not a restricted one but rather a comprehensive one, allowing the financial market to operate freely as is the case in London, New York, or Hong Kong. The centre would include money and capital markets for financial transactions of syndicated loans, foreign exchange dealings, financial and foreign exchange futures, commodities trading, international funds management, trade financing, and swaps and options. However, the centre was not to include the development of off-shore banking units at the time. Various plans and instruments for Thailand have been implemented: (a) the ceiling on interest rates on fixed deposits was abolished on March 1,1989, and the ceilings on savings deposits and credits will be eliminated in the near future [Bangkok Bank Monthly review, September 1990]; (b) in 1989, the Finance Ministry invited foreign banks to apply for licenses to operate branches in the country, with a narrow scope of business engagement initially [Bangkok Bank Monthly Review (May 1990)]; (c) on May 21, 1990, the Thai government announced its acceptance of Article 8 of the IMF Agreement to liberalise foreign exchange controls [Bangkok Bank Monthly Review (May 1990)]; (d) private business and other private parties can apply for permission to open foreign exchange accounts with banks abroad; individual and legal entities may soon be allowed to take out up to US$5 million per year of their capital for direct investment abroad without permission from the Bank of Thailand; and people domiciled abroad are permitted to pen baht accounts in Thailand [Bangkok Bank Monthly Review (January 1990)]; and (e) the development of commercial paper (including that denominated in foreign currencies) must have guidelines to meet international standards and be in line with the changing economic conditions of the country, and for now both the commercial paper market and the stock market are authorised to be under one supervisory body, the Stock Exchange Commission [Bangkok bank Monthly Review (September 1990)].

The relatively new, small, and emerging Thai stock market has shown remarkable progress in its development in recent years, and it too has mobilised domestic savings for financing business investment. Concurrently, significant inflows of foreign capital have become

available for the same ends. Since 1988 the Stock Exchange of
Thailand Index (SET) (base of 100 in 1975) has increased as high as
879 in 1989 and fluctuated around the upper 700 level in 1990
[Bangkok Bank Monthly Review (March 1991)]. The value and volume of
corporate securities have increased many fold. The surge in stock
prices reflects an expansion and liberalisation of the financial
sector domestically and internationally, along with the sustained
economic growth of the country.

Taiwan. Although Taiwan has achieved its economic success for
quite a while (one of the world's highest rates of economic growth
for the past 3 decades), but many of its markets remained
substantially under control, including the finance sector. Due to two
new circumstances -- (a) the oil crisis and the accompanying global
financial disorder and (b) the massive built-up of foreign exchange
reserves (trade surplus and high money supply growth), Taiwan adopted
the liberalisation of financial market at the beginning of the 1980s.

Foreign exchange "partial" liberalisation. In February 1979, a
floating rate system of foreign exchange was adopted in place of a
fixed rate system; subsequently, the value of the New Taiwan (NT)
dollar has been fluctuating ever since. The current account balance
has increased substantially from 1985, and the US dollar has
continuously depreciated since the "G5" meeting in September 1985.
Both phenomena have created a natural tendency for appreciation of
the NT dollar against the US dollar. A drastic appreciation of the NT
dollar could involve high adjustment costs in both the export-and
import-competing sectors; hence, the Central Bank frequently
intervened in the foreign exchange market, so that the NT dollar
appreciates "gradually" and "smoothly". The intervention appears to
be the right policy because the NT dollar appreciated by about 40 per
cent against the US dollar from 1985 to 1987, while the Taiwan's
foreign exchange reserves increased by US$59 million (Central Bank of
China, various issues).

Capital liberalisation. Before the deregulation of foreign
exchange controls of July 1987, international capital movement
already existed. Importers borrowed foreign exchange through
commercial banks and sold it in the foreign exchange market for the
NT dollar. Similarly, commercial banks and non-bank private sectors
also borrowed foreign exchange from abroad and sold for NT dollar in
the foreign exchange market. The lift of foreign exchange controls
was essentially to encourage more capital movement. The amount of
purchase of foreign exchange for outward remittance was permitted to
a maximum of US$5 million per adult per year. The Central Bank also
tried to lift the ban on capital inflows on October 1, 1987, but
failed because it caused NT dollar to appreciate further which has
already been the problem.

Internationalisation of the securities market. Taiwan
government announced to encourage participation of foreign nationals
in the Taiwan securities in three gradual phases: (a) the first phase
will allow foreign investors to invest directly through the purchase
of mutual funds, (b) the second phase will permit direct investment
by foreign investment institutions in the Taiwan securities market,
and (c) the last phase will allow overseas Chinese and foreign
individuals to investment in the market directly. The revision of the

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Securities and Exchange Law in 1988 was quite significant; it updated and liberalised most of the existing laws.

III Review of Research on Black Market Exchange Rates and the Demand for Money in Developing Countries

This section takes a look at the relevant literature dealing with black market exchange rates and money demand in third world countries. Koveos and Seifert (1985) examined Latin American currencies to see whether the efficient market version of purchasing power parity theory (PPP) was true of the black markets too. Their empirical result was confirmed, despite the thinness of the currency markets and the apparent lack of access to information to all those participating in the market [Koveos and Seifert (1985)].

A second study exploring the efficiency of black market exchange rates in developing countries discovered that the black market exchange rates in India, South Korea and Taiwan were efficient in the weak form sense [Gupta (1981)]. It concluded that black market exchange rates indicate market trends and have use as guides for setting official exchange rates.

A third study involved the long-run behaviour of black market and official exchange rates for both US dollars and West German marks in the Turkish markets using mid-1980s data and applying co-integration tests (Booth and Mustafa (1991)]. The black markets for these two countries were found to be efficient information processors, although the possibility of overshooting by the black market exchange rate was detected. The study went on to propose that this lack of efficiency may persist (in spite of the arbitrage possibility) due to limits on capital flows via official channels. Hence, indirect support of Gupta's (1981) findings seemed to emerge.

The relationship between law enforcement and the Brazilian black market exchange rates was the focus of Huizinga's study [Huizinga (1991)]. By estimating such rates as a function of several variables expressed in logarithmic form (e.g., the official exchange rate, the difference between it and the black market exchange rates, monetary aggregates, and the number of times people were charged with import violations), foreign exchange restrictions were found to be the principal *raison d'être* for black market exchange in Brazil.

Another study establishing black market exchange rates as a function of several variables (this time the official rate, the (unabsorbed) equilibrium rate, government holdings of foreign exchange reserves, and the premium offered for foreign exchange sold through the black market), was carried out by Culbertson (1989). The model was estimated for ten countries from 1957 to 1983, using purchasing power parity calculations to approximate the equilibrium rate. Equilibrium exchange rates were found to be considerably `flavoured' by relative rates of inflation. While testing for the weak-form efficiency of black market exchange rates, the author found that the hypothesis, that at any given point in time black market rates incorporate all relevant historical price information, could

not be rejected. His study also supports the asset-like character of national moneys since black market exchange rates are set in weak-form efficient markets. The study concludes that because black market exchange rates represent in fact the relative price of two national moneys, they depict accurately price-level developments (and, it follows, monetary conditions) in the two countries involved.

How black market exchange rates expectations affected the domestic demand for money in Brazil, Chile and Columbia (all with foreign exchange controls) was studied by Blejer (1978). Findings include a depreciation in the black market exchange rate leading to a decrease in domestic money demand and an increase in domestic money supply. These results were ascribed to individuals re-balancing their portfolios. He also found that when the proxy for expected currency depreciation is left out of the demand for money function, the variations in the demand for money due to changes in the expected rate of domestic inflation have a tendency to be overestimated.

Hassan (1992) used quarterly data for Bangladesh from early 1974 through late 1989 to look at the role of credit constraints, foreign interest rates, currency depreciation, the domestic inflation rate, and domestic income -- all to determine the money demand. He found that, as elsewhere, real income and expected inflation rates determine significantly the demand for money. Foreign interest rates and the official exchange rate (currency depreciation) had no major role in Bangladeshi money demand. However, in a study by Hassan *et. al.* (1993), when black market exchange rate depreciation was used, it was found to be related to money demand.

IV Model Specifications and Data

The demand for money and the black market exchange rate convention dictates that a money equation may contain a scale variable related to transaction levels in the economy and a variable representing the opportunity cost of holding money. In an open economy, a variable which notes the relative return of a foreign asset vs. that of a domestic asset is incorporated into the money demand equation to demonstrate the affect of currency depreciation on domestic money demand.

For this research, a model similar to Blejer's (1978) is used, where the depreciation of the black market exchange rate is shown as a function of the relationship between monetary dis-equilibrium and the world inflation rate. The black market exchange rate will depreciate faster with higher rates of domestic credit expansion relative to the increases in the demand for domestic real cash balances, while it will depreciate slower if the world inflation rate increases.

Blejer (1978) demonstrated that an equilibrium is sustained in this system when the monetary authority expands the money supply at the rate necessary both (a) to satisfy the growth of the real money demand and (b) to replace the depreciated value of the nominal money stock. The equilibrium is achieved when the *ex-ante* excess supply flow of money is equal to the world inflation rate, i.e., when the exogenous components of the money supply (domestic credit and the money multiplier) are increased at a rate exceeding the growth in

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demand for real money, adjusted for the world inflation rate. At this point, the domestic inflation rate will not deviate from the world rate; the balance of payments will be in equilibrium; and both the official exchange rate and the black market exchange rate will remain constant.

In this paper, the demand for money equation with the black market exchange rate was modified from the models employed by Hassan (1993) and Blejer (1978). The equation can be written as:

$$\ln(M/P_n)^d = a_0 + a_1 \ln Y_t + a_2 CH_t + a_3 CF_t + a_4 D_t + e_t \qquad (1)$$

where
t   = time-period
M_i = types of money (M_1 and M_2)
Y_t = measured real income
CH_t = the opportunity cost of holding domestic money
      (expected domestic inflation rate)
CF_t = the relative return from holding foreign asset vis-à-vis
      domestic assets
D_t = dummy variable and is zero for period prior to financial
      liberalisation and one otherwise
e_t = error term,

The coefficients of the equation are elasticity. The expected signs of the coefficients are: the income elasticity will be positive ($a_1 > 0$) and the opportunity cost of holding domestic money will be negative ($a_2 < 0$), while the cross elasticity will be negative ($a_3 < 0$).

Since the expected domestic inflation (H) is unobservable in time-series data, and if it is assumed to have a static expectation, the actual inflation rate (percentage change in the consumer price index) in any given period can be used as a proxy for the expected inflation rate in the next period (Driscoll and Lahiri, 1983).

The desired money balance ($(M/P)^d$) can be connected with the actual money balance through an adaptive expectations mechanism. In this information, it is assumed that the public is holding its desired real money balance but that level is itself assumed to depend on expected values of one or more of the independent variables, rather than on current actual values. A Kyck transformation shows that the entire adaptive expectations process can be approximated by a lagged dependent variable. In the literature, the money demand equation with a lagged dependent variable is treated as a short-run money demand equation, and without it is considered a long-run money demand equation.

The relative return of foreign assets vis-à-vis domestic assets (CF) is derived as:

$$CF = \ln (P_d/P_w) - \ln B_{ex} \qquad (2)$$

where P_d, P_w, and B_{ex} are the domestic price index, the world price index, and the black market exchange rate (local currency/US$), respectively. The world price index is approximated by using the US consumer price index (Blejer 1978)).

This study covers three countries over the period 1974-1989. Data on demand for money (quasi-money) and CPI, and time-series data on real GDP (using the industrial production index for South Korea instead) were obtained from the International Financial Statistics CD-ROM data base. The time-series black market exchange rates, i.e., free-market data for the end of each month, (Korean won/US$, Taiwan dollar/US$, and Thailand baht/US$) for South Korea, Taiwan, and Thailand, respectively, were collected from various issues of Pick's Currency Yearbook and World Currency Yearbook.

V EMPIRICAL RESULTS

South Korea. In Figure 1 we have plotted South Korea's official/black market pair of exchange rates. The graph shows two patterns of the official and black market exchange rates. The first was around 1981 when financial liberalisation was introduced in South Korea, and the second occurred in 1985, reflecting a drastic appreciation of the Japanese yen that year and a subsequent step-up of Japanese overseas investment in Asia, while South Korea was also facing rising labour costs and relocating some of its industries abroad [Ying (1990)].

The mean, standard deviation and coefficient of variation (CV) for each rate, computed annually as well as for the periods of 1974-1980, 1981-1984, 1985-1989, 1974-80, 1981-1989 and 1974-89, are presented in Table 1. Apparently, the official exchange rate of Korean won/US$ was fixed until 1980. In general, the CVs of the black market exchange rate seem to be larger than the CVs of the official rate in almost every period. However, the CVs of both rates as well as the gap between the two gradually decreased as time went by, reflecting the integrating effect of financial liberalisation.

The Box-Cox extended auto-regressive model developed by Savin and White (1978) is used to simultaneously test for functional form and autocorrelation in a time-series regression model of demand for money. The estimated results are shown in Table 2. As the quasi-money (M_2) is used as a dependent variable, all the estimated coefficients of income, inflation, and the black market exchange rate (BMER) have the expected signs and are statistically significant. In addition, the coefficient of the dummy variable is significant, indicating separate demand-for-money equations, one before (1976-1980) and another after (1981-1989) the financial liberalisation programme.

In the short-run equation of demand for money, the estimated coefficients of the variables for income and inflation as well as that of the dummy variable have the expected signs and are statistically significant, except the coefficient of BMER (CF_t) that has a positive sign and is not statistically significant.

Taiwan. Taiwan's official/black-market pair of exchange rates were plotted in Figure 2. The graph shows three patterns of both exchange rates. The first was around 1981 when a floating exchange rate was put into effect, the law was passed since 1979. The second appeared in 1985, reflecting Taiwan's large trade surplus and depreciation of the US dollar since the "G5" meeting in September 1985. The third occurred in 1987-88 when the foreign exchange control was lifted and the Securities and Exchange Law as revived to permit more foreign investment in Taiwan securities.

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The means, standard deviations and CVs of Taiwan's official and black exchange rates are computed for 1974-80 (before financial liberalisation), 1981-89 (after financial liberalisation) and 1974-89 (Table 1). The average CVs of black market exchange rate for 1974-80 seem to be larger than the average CVs of the official exchange rate. But from the 1981 onward the CV of both exchange rates (black market and official) are almost identical, reflecting Taiwan's progress towards financial liberalisation and integration.

Table 3 shows the empirical estimates of the long-run money demand equation for Taiwan; M_2 was used as dependent variable. The estimated coefficients of income, a_1 and inflation, a_2, both have appropriate signs, but the coefficient of inflation, a_2 is not statistically significant. The coefficient of BMER (the black market exchange rate), a_3 does not have the expected sign, but it is statistically significant. The coefficient of dummy variable is not significant. Thus, it is indicated that financial liberalisation did not make any difference. Nevertheless, the Taiwanese domestic demand for money showed an increase in spite of depreciation of its BMER, which could be due a high rate of savings. Taiwan's saving rate is high because it has always pursued a policy of encouraging small firms producing labour- intensive goods for export and a policy of domestic financial liberalisation with high interest rates for savings deposits. Thus, low skilled workers were mostly employed and they had a high incentive for saving.

The empirical results of the short-run dynamic adjustments in money demand are also reported in Table 3. Only income, inflation and lagged money demand (both with correct signs) are appropriate opportunity cost and scale variables in money demand functions for Taiwan.

Thailand. Thailand's official/black market pair of exchange rates are presented in Figure 3. Three significant patterns of both exchange rates are indicated on the graph. The first was around 1981, when the government faced a fiscal crisis; the second was in 1985, when the floating exchange was used for the first time, and a large scale of foreign capital inflows especially from Japan took place due to a tremendous appreciation of Japanese yen as well as Japanese firms' policy to reduce their own high labour cost; the third was in 1990, when government officially put forward the plan to have Bangkok as an international financial centre, at least, as a regional centre. Before 1985, official exchange rate was fixed and black exchange rate moved (higher or lower) around the fixed official exchange rate. This pattern was rather different for South Korea and Taiwan. Their black exchange rates were normally higher than the official exchange rates during the fixed exchange rate regime. The Thai black exchange rate appears to give a lead or signal to the financial authority to adjust its rate more than one expected, or it may mean that the official exchange rate controls have never been effective in Thailand.

Table 1 shows the mean, standard deviations and CVs of Thailand's official and black exchange rates. The average CVs of black market exchange rate seem to be the same with the official rate in both periods, 1974-1984, and 1985-1989. However, the CVs of 1974-1984 were larger as compared to the 1985-1989. This is opposite to South Korea's and Taiwan's situations.

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The empirical estimates of the long-run money demand equation for Thailand (M_2 as dependent variable) are presented in Table 4. The coefficients of income, a_1 and black exchange rate, a_3 have appropriate signs and are significant. However, the coefficient of inflation, a_2 is uncertain on its sign and is not significant. The coefficient of dummy variable does not indicate that the financial liberalisation can make difference when black exchange rate is used in the Thai long-term demand for money. The black market exchange rate is supposed to represent a market, and therefore, financial liberalisation should be reflected through the BMER at any given moment.

The empirical results of the short-run dynamic adjustments in money demand are also reported in Table 4. Income, inflation, and lagged money demand are appropriate opportunity cost and scale variables in money demand functions for Thailand; the three coefficients have their expected signs.

VI CONCLUSIONS AND POLICY IMPLICATIONS

The results for South Korea confirm that income, inflation, and the black market exchange rate are appropriate scale and opportunity cost variables in the long-run money demand function. In the case of Thailand income and black exchange rates and for Taiwan income and, to some extent, inflation are significant variables in the long-term demand for money. Financial liberalisation is an important factor in the long-term demand for money in the case of South Korea, but it did not make a difference in the case of Thailand and Taiwan.

The results could be analysed as follows:

- the long-run demand for money equation with quasi-money as a dependent variable is a better representation because quasi-money extends to include less liquid components of money such as time deposits, savings deposits, etc.;
- inflation rate is an appropriate opportunity cost of holding money in a money demand function;
- the South Korean results confirm that without incorporating the black market exchange rate in the demand for money equation, the influence of inflation on the demand for money (in the quasi-money equation) is overestimated,
- expected black market exchange rate depreciation in the case of South Korea has a significant effect on domestic money demand and consequently on money supply through individual portfolio adjustment (supporting the earlier findings of Blejer (1978) and Hassan et. al. (1993).

As regards the policy implications, since a depreciation in the black market exchange rate has a negative effect on the demand for money, the monetary authorities must take this factor into account while formulating foreign exchange policy. A foreign exchange policy designed to meet the nation's economic goals (such as suppressing a balance of payments dis-equilibrium, facilitating national planning, protecting domestic industries, and creating government revenue) is most likely to exacerbate the black market exchange rates. Secondly, if black markets represent an efficient information process, then the

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black exchange rate can be used as an indicator of market trends and as a guide for setting the official exchange rates. An effort to regulate it may create more distortions [also see argument in Booth and Mustafa (1991)]. Thirdly, if the existence of a black market is the product of foreign exchange restrictions, then an effort to regulate it may cause various consequences like the capital transfers through illegal means, further decreases in the demand for domestic money, or inflation.

The governments of South Korea, Taiwan and Thailand have made substantial progress towards financial liberalisation, including the internationalisation of their stock and bond markets. The process should benefit the international capital market in the long run. As soon as financial liberalisation matures and/or exchange control is eliminated, there ought to be a decline in the black market or an alignment of black market and official exchange rates. However, unification of both exchange markets and exchange market liberalisation are not without problems. Indeed, most experiences of exchange-rate unification in other countries are followed by a substantial increase in inflation, which the governments of South Korea, Taiwan and Thailand must be prepared to face temporarily if they should choose such a policy [Pinto (1989) and Agenor (1992)].

Limitations and Further Research. An analysis of the demand for money would not be complete without encompassing the significant role played by the unofficial financial markets in developing countries. For example, Keh is a form of informal private lending and borrowing in South Korea, and in the literature it is referred to as rotating saving and credit societies. The recent financial reform by the government of South Korea (1993), enforcing the use of real names for financial transactions and ownership, was proof of this large and vital portion of financial transactions. Further research in this area will shed new light on the unique nature of money demand in South Korea and other Pacific-Rim countries that have informal financial markets.

Table 1: **Official and Black Market Exchange Rates**

Year			Mean	S.D.	C.V.
		South Korea won/US$			
Average (74-80)	Off		509.73	53.41	.10
	B-M		550.71	70.23	.13
Average (81-84)	Off		749.17	48.96	.07
	B-M		797.97	67.29	.08
Average (85-89)	Off		807.99	78.59	.10
	B-M		850.60	85.93	.10
Average (74-80)	Off		509.73	53.41	.10
	B-M		550.71	70.23	.13
Average (81-89)	Off		780.31	72.29	.09
	B-M		825.83	81.71	.10
Average (74-89)	Off		680.09	146.64	.22
	B-M		723.93	154.14	.21
		Taiwan dollar/US$			
Average (74-80)	Off		36.99	0.99	.027
	B-M		38.93	1.78	.043
Average (81-89)	Off		36.07	4.66	.123
	B-M		37.49	4.94	.131
Average (74-89)	Off		36.41	3.77	.103
	B-M		38.14	3.89	.102
		Thailand baht/US$			
Average (74-84)	Off		21.48	1.51	.070
	B-M		21.24	1.43	.067
Average (85-89)	Off		26.03	0.75	.030
	B-M		25.62	1.159	.045
Average (74-89)	Off		22.99	2.518	.109
	B-M		22.52	2.412	.107

SD = Standard deviation
CV = Coefficient variation

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Table 2: **South Korea: Estimated Parameters of Long-Run and Short-Run Demand for Money**

Coefficient	Long - Run		Short - Run	
	(A)	(B)	(A)	(B)
Constant	-0.314***	-1.119***	0.301	0.096
	(-3.102)	(-2.907)	(1.595)	(1.299)
$\ln Y$	0.992***	0.976***	0.334***	0.032**
	(-45.264)	(42.785)	(2.155)	(2.049)
CH	-1.304*	-1.247*	-6.163***	-0.797***
	(-1.864)	(-1.805)	(1.864)	(-6.184)
CF	---	-0.135**	---	0.011
		(-2.165)		(0.914)
$\ln(M_2/P)_{t-1}$	---	---	0.961***	0.964***
			(64.117)	(63.047)
D	0.138***	0.128***	7.011	0.001
	(7.180)	(6.483)	(0.017)	(0.131)
R-squared	0.974	0.974	0.999	0.999
Adj R-sq	0.973	0.973	0.999	0.999
F-stat	1347.020	1106.269	36627.290	27158.110
D-W stat	1.492	1.510	2.121	2.129

t-value is in parenthesis
*** significant at 1 per cent level
** significant at 5 per cent level
* significant at 10 per cent level

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Table 3: **Taiwan : Estimated Parameters of Long-Run and Short Run Demand for Money**

Coefficient	Long - Run M_2 (A)	M_2 (B)	Short-Run (A)	(B)
Constant	-13.704*** ((-15.446)	-7.306*** (-3.946)	-0.720 (-0.450)	-0.614 (-0.334)
lnY	1.889*** (20.011)	1.565*** (13.163)	0.146 (0.686)	0.173 (0.562)
CH	0.003 (0.775)	-0.004 (-1.266)	-0.011*** (-5.024)	0.011*** (-4.503)
CF	---	0.872*** (3.540)	---	0.082 (0.358)
ln $(M_1/P)_{i-1}$	---	---	0.895*** (8.363)	0.882*** (4.665)
D	-0.032 (-0.374)	-0.003 (-0.050)	-0.029 (-0.745)	-0.039 (-0.863)
R-squared	0.987	0.989	0.997	0.996
Adj R-sq	0.984	0.986	0.996	0.994
F-State	401.711	291.185	1540.594	609.362
D-W test	1.687	1.956	2.236	2.239

t-value is in parenthesis
*** significant at 1 per cent level
** significant at 5 per cent level
* significant at 10 per cent level

Table 4: **Thailand : Estimated Parameters of Long-Run and Short-Run Demand for Money**

Coefficient	Long - Run M_2		Short-Run M_2	
	(A)	(B)	(A)	(B)
Constant	-2.033 (10.032)	-3.987 (-5.419)	-0.240 (1.337)	-0.521 (0.941)
lnY	1.669*** (16.976)	1.099*** (4.922)	0.298** (2.247)	0.305** (2.193)
CH	-0.321 (-0.624)	0.386 (0.806)	-0.663*** (4.379)	0.576** (-2.545)
CF	---	-0.963** (-2.7120)	---	-0.097 (-0.539)
$\ln(M^1/P)i{-}1$	---	---	0.826*** (10.567)	0.788*** (7.282)
D	-0.062 (-0.558)	-0.012 (-0.130)	-0.017 (-0.517)	-0.014 (-0.402)
R-squared	0.978	0.988	0.998	0.998
Adj. R-sq	0.972	0.983	0.997	0.997
F-state	153.515	190.648	1417.394	1044.693
D-W test	1.697	2.042	2.084	2.206

t-value is in parenthesis
*** significant at 1 per cent level
** significant at 5 per cent level
* significant at 10 per cent level

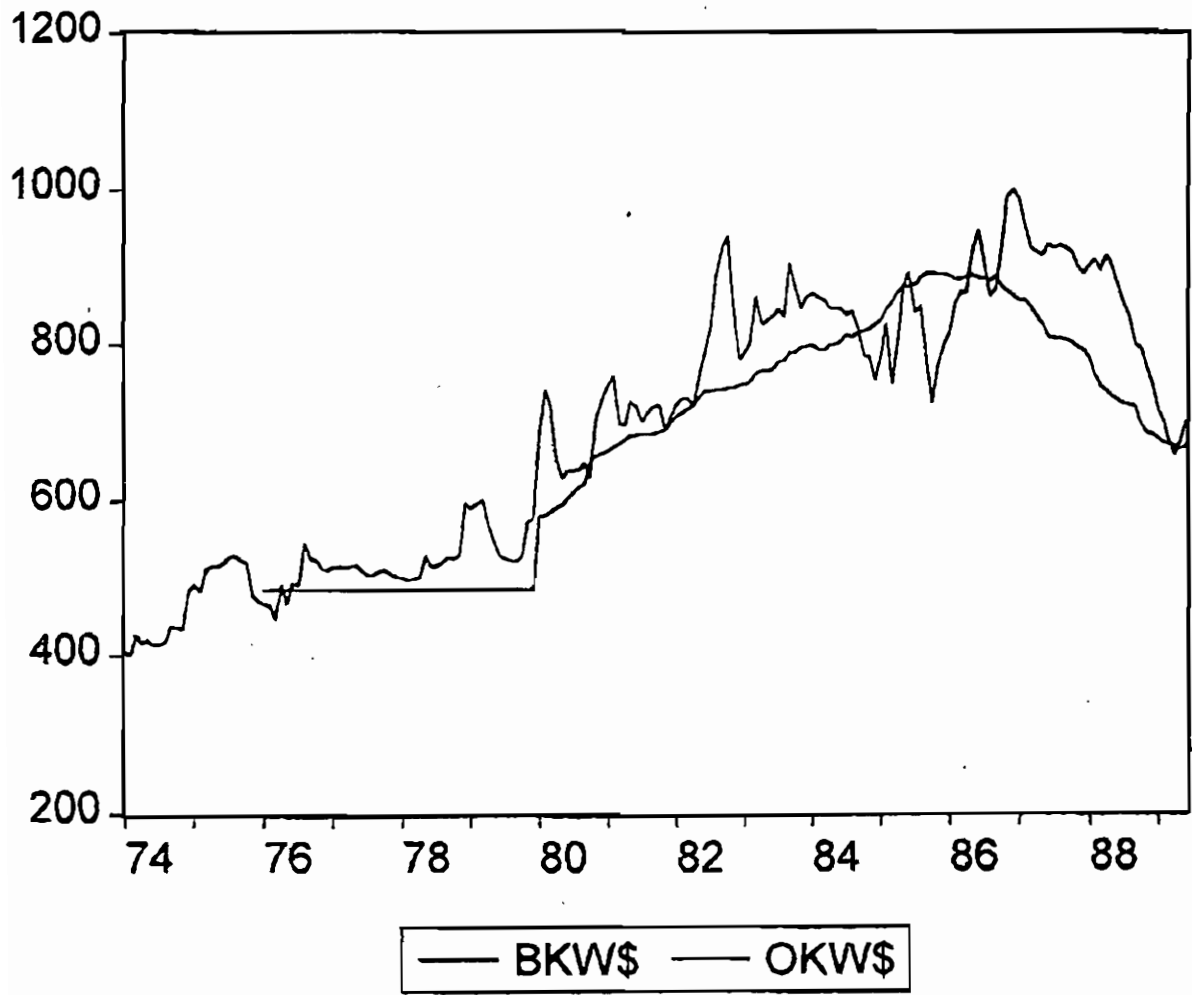SOUTH KOREA: OFFICIAL AND BLACK EXCHANGE RATES

Figure 1

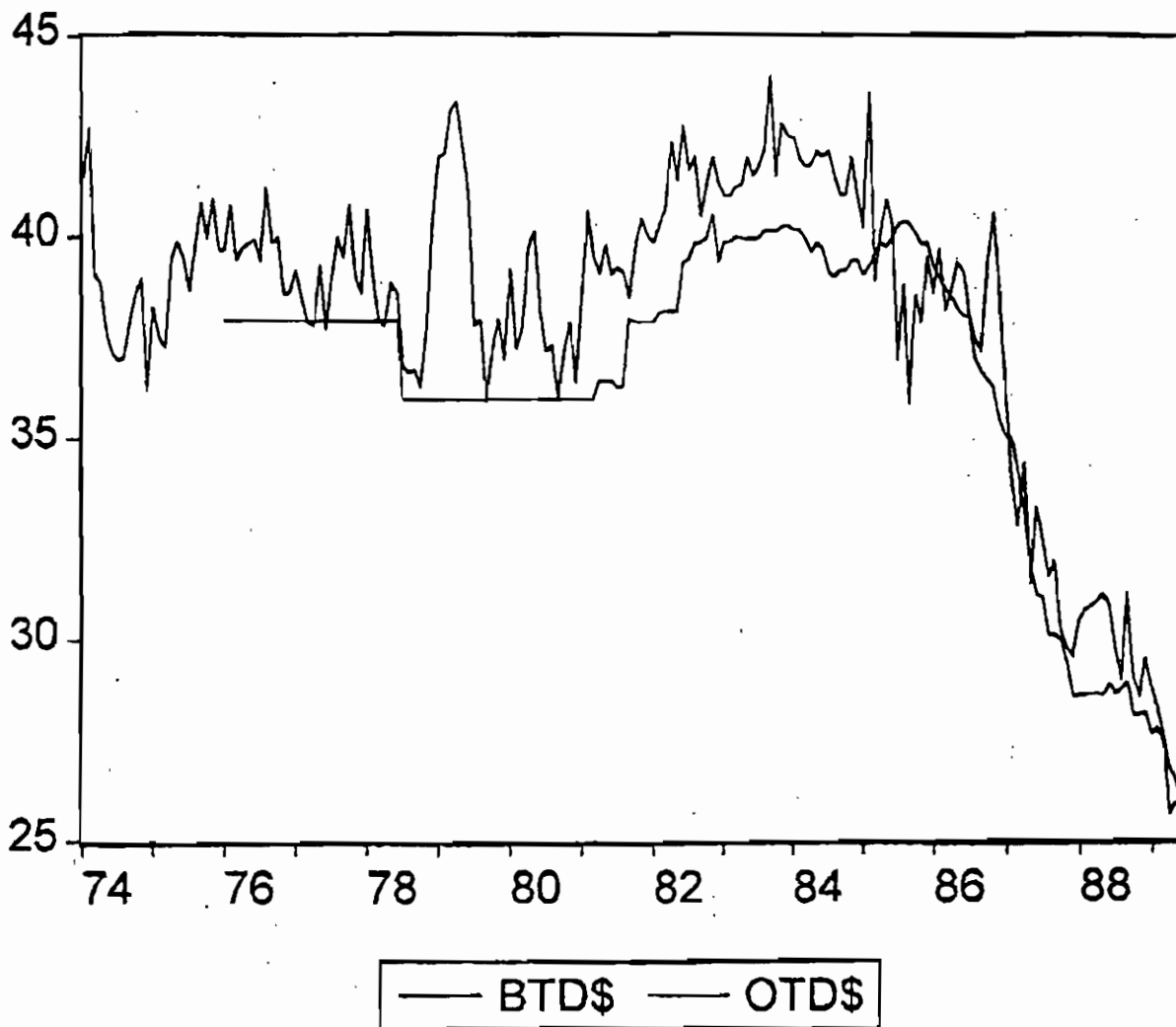TAIWAN: OFFICIAL AND BLACK EXCHANGE RATES

Figure 2
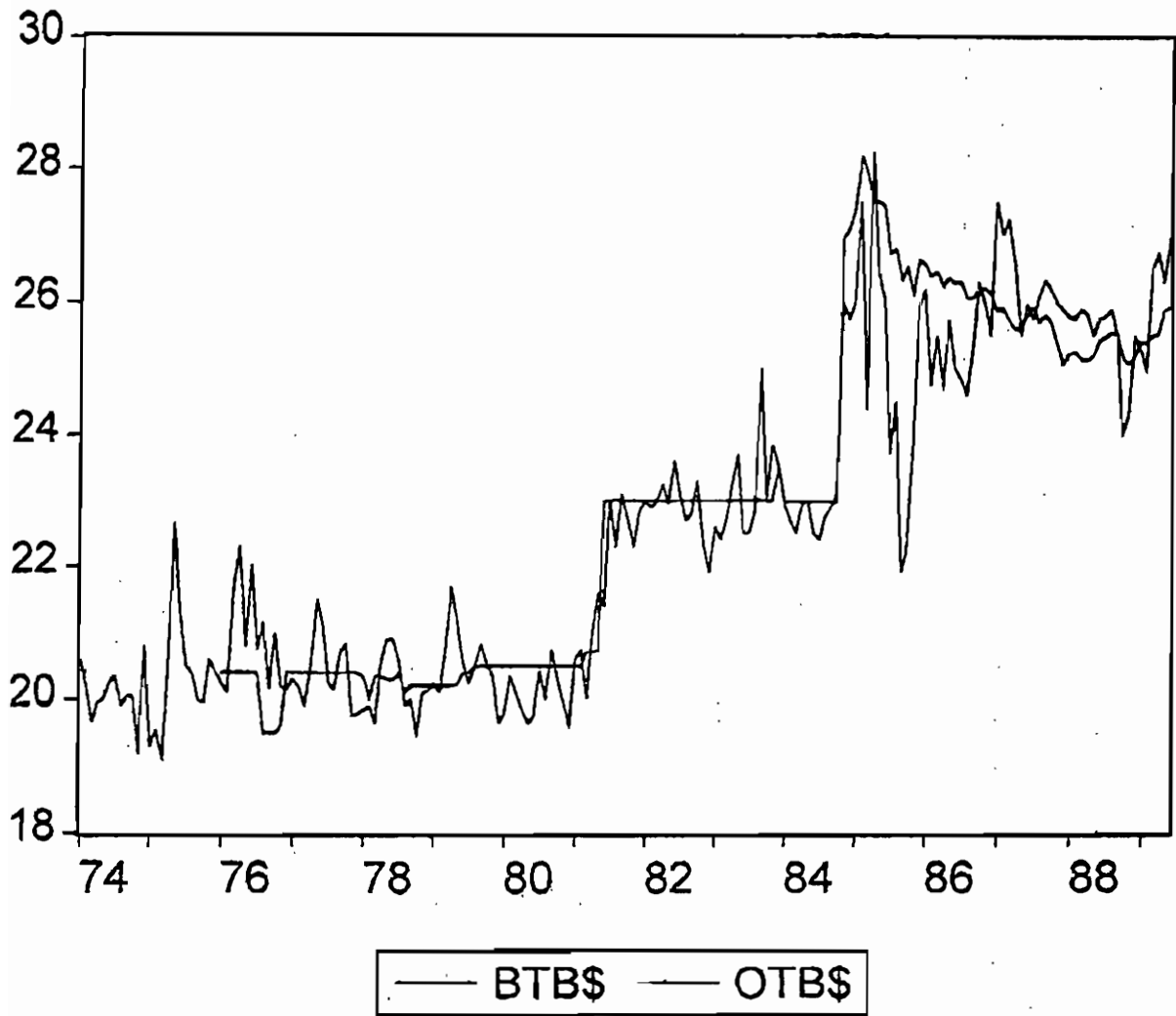
THAILAND: OFFICIAL AND BLACK EXCHANGE RATES

Figure 3

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