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CENTRAL BANKS' USE IN EAST ASIA OF MONEY MARKET INSTRUMENTS
IN THE CONDUCT OF MONETARY POLICY

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ABSTRACT

The paper examines the greater use in the past decade of money market instruments in the conduct of monetary policy by the central banks, or their equivalent, in six of the main East Asian developing economies. Some of these economies have been successful in using various money market instruments to control liquidity, while others have been much less successful. A common theme in the case of the successful economies has been one of employing money market instruments that have yields based on actual market demand and supply. In those cases where the yields have been unrealistic due to not being based on market conditions, the open market operations have generally not been successful. Indonesia's past experience would be an example of this. Based on the experience of these economies, it is suggested that a viable market in treasury bills issued by the national government--not the central bank--be developed for the central bank's use in its monetary policy operations. The advantages of a well-developed open market operation over other traditional monetary policy instruments are cited near the end of the paper.

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by Robert F. Emery¹

A. Introduction

Much of the past literature on the use of monetary policy instruments by central banks in East Asia has focused on three main areas. These have been adjustments in commercial bank reserve requirements or liquidity ratios, central bank discount policy, and the use of various direct controls such as ceilings on the amount of commercial bank credit expansion. Less attention has been paid to central banks' use of money market instruments in the conduct of monetary policy. Yet, this is an important area, particularly since six of the eight major East Asian developing economies have utilized money market instruments of one type or another since the early 1980s in achieving their monetary policy objectives. This shift to greater use of money market instruments and, hence, open market operations, has been accompanied by the central banks' issuance of their own debt instruments.²

This paper examines the six East Asian developing economies that have utilized money market instruments during the past decade as either a major monetary policy instrument or as a supplement to other instruments in the pursuit of monetary policy objectives. The six economies covered

1. The Author is a staff economist in the International Finance Division. I have benefited from comments by Henry Terrell and Deborah Lindner. The views expressed in this paper are solely the responsibility of the author and should not be interpreted as reflecting those of the Board of Governors of the Federal Reserve System or members of its staff.

2. For additional detail on this topic, see "Financial Liberalization, Money Demand, and Monetary Policy in Asian Countries," Wanda Tseng and Robert Corker, Occasional Paper 84, International Monetary Fund, July 1991, pp. 24-33.

are the Philippines, Korea, Taiwan, Indonesia, Thailand and Hong Kong. Malaysia and Singapore are excluded as neither has made much, if any, use of money market instruments in their conduct of monetary policy.

It is hoped that through an examination of the specific experiences of these economies with the use of money market instruments in carrying out monetary policy, that some insights can be gained as to which approaches and instruments are likely to be successful in achieving the authorities' monetary policy objectives. Equally important is to gain an understanding of what conditions are needed in order to undertake successful operations with these money market instruments. The concluding section contains some of the reasons why open market operations in the case of truly viable money market instruments, are more advantageous than the three other traditional instruments cited earlier.

B. Individual Countries' Use of Money Market Instruments

With the exception of Hong Kong and the Philippines, all of the six economies employ money market instruments that constitute some type of central bank obligation, rather than a national government, or federal treasury, obligation such as a treasury bill. The main reasons for this will be detailed later. In the case of Hong Kong, this overseas territory of the United Kingdom has no central bank. However, in recent years, the territory's Exchange Fund has had its powers of control over bank liquidity strengthened, and in March 1990, the Exchange Fund began to issue its own Exchange Fund bills. Currently the Central Bank of the Philippines uses national government treasury bills in its open market operations, but earlier during 1984-87 the Central Bank issued its own obligations--popularly known as "Jobo" bills after Central Bank Governor Jose B. Fernandez, Jr.--to mop up excess liquidity in the commercial

banking system.³ However, the focus in this paper will be on the Central Bank's current use of treasury bills in its open market operations and not the "Jobo" bills.

The situation in each of the six economies differs, either in terms of the nature of the central bank obligation, its name, or how it is employed in the pursuit of the central bank's monetary policy objectives. Thus it is appropriate to examine each economy separately. This is done chronologically, depending on the date when the money market instrument was first introduced. The earliest instrument is the Philippine treasury bill (1966) and the most recent is Hong Kong's Exchange Fund bill (March 1990).

Philippines.--The Philippine government first began to issue treasury bills on May 16, 1966.⁴ Since then the treasury bill market has had an on-again, off-again, history. However, currently the treasury bill market constitutes one of the largest components of the Philippine money market and is roughly equal in size--as based on turnover--to the interbank market. It is also a major source of borrowed funds for the government since in recent years treasury bills have accounted for roughly 80 percent of all outstanding national government securities.

The history of the treasury bill market can be divided into three periods. The first period extended from 1966 to 1973. During the early 1970s the authorities began to require the commercial banks to hold

3. Even earlier, beginning in 1970, the Central Bank issued CBCIs (Central Bank Certificates of Indebtedness), but these were medium-term certificates and were not necessarily designed for carrying out open market operations. By 1987 the CBCIs had been gradually phased out.

4. For a detailed description of the first year of activity see Robert F. Emery, "The Successful Development of the Philippine Treasury Bill Market," Central Bank News Digest, Central Bank of the Philippines, Manila, June 13, 1967, pp. 2-7.

treasury bills as part of their secondary reserves. With a somewhat captive market, the yields on treasury bills tended to become less competitive with other non-government money market instruments. By 1973, treasury bills had disappeared from most private nonbank portfolios. Treasury bills enjoyed a resurgence in the second period (1977-89) when the government imposed in June 1977 a 35 percent transactions tax on the sale of many private money market instruments. This resurgence continued until a balance of payments crisis occurred in October 1983. Due to this financial crisis, the government suspended treasury bill auctions in 1984 and in March began to issue the "Jobo" bills cited earlier. The third period began in October 1986 when the government once more began to auction treasury bills and since then the treasury bill market has remained an active and viable market. At the beginning of each of these three periods the government had to accredit, or re-accredit, a network of government securities dealers in order to properly start, or re-start, the market.

Although the Philippine central bank has several instruments of monetary control, its main instrument has been the treasury bill auctions and the open market operations--particularly on a day-to-day basis. Occasional use has been made of changes in reserve requirements and in the central bank's discount rate. For example, on November 30, 1990, the central bank raised the reserve requirement on bank deposit and deposit substitute liabilities to 23 percent from 21 percent, and between June 1990 and March 1991 the central bank's discount rate was increased from 9.8 percent to 10.8 percent. But both of these instruments are not well suited for influencing week-to-week or even day-to-day, bank liquidity. The treasury bill market is better suited for that task and it is able to

be effective because of its relatively large size. At the end of 1989, treasury bills outstanding totaled 173 billion pesos, which was much larger than the money supply outstanding of 81 billion pesos at the time.

The central bank has used several techniques to influence bank liquidity. For example, in addition to regular open market operations with the treasury bills, the bank has--at times--increased the size of the weekly auction in order to absorb excess bank liquidity. Thus, in mid-August 1989 the weekly treasury bill offering was raised to 10 billion pesos from 6 billion in the previous week. The bank has also frequently used reverse repurchase agreement transactions to absorb commercial bank liquidity. This has involved central bank borrowing from the commercial banks using the central bank's holdings of treasury bills as collateral, with an agreement to repay the loan at a specified maturity date and rate of interest.

The central bank could not have exercised an effective control over bank liquidity in the absence of a well developed treasury bill market, or, similarly, a well developed market in some central bank money market obligation. As indicated earlier, the Central Bank Certificate of Indebtedness, which was phased out in 1987, was not particularly appropriate for open market operations since it was a medium-term instrument carrying a fixed rate of interest. The central bank has continued, on an irregular basis, to issue its own CB bills to reduce commercial bank reserves,⁵ but otherwise its main reliance has been on the treasury bill auctions and open market operations.

5. In September 1990, for example, the central bank issued some 60-day CB bills. Eligible holders include banks, public and private corporations and individuals. See "CB Sops up Excess Liquidity," CB Review, Central Bank of the Philippines, Manila, September 1990, p. 40.

There are several important factors that have helped to make the central bank's open market operations with treasury bills successful. One is that the interest rates in the treasury bill market have not been controlled since 1983 and have been free to reflect demand and supply conditions. This has helped in the development of an active secondary market in treasury bills--particularly since 1988--and market transactions have also been facilitated by the introduction of a book entry system in February 1989. A second factor is that the central bank has not made treasury bills reserve eligible, i.e. they do not qualify for any primary or secondary commercial bank reserve requirement. The danger with making treasury bills reserve eligible is that too much of a "captive market" develops for such bills and the government is tempted to issue the bills at below-market interest rates. Lastly, the Philippine money market is sufficiently flexible that the central bank has been able to use reverse repurchase agreements extensively when it desires to reduce bank liquidity. This has not been the case for most of the other East Asian central banks examined here.

Korea.--Although Korea has a treasury bill market, the nature of the market is such that treasury bills have not been a suitable instrument for the Bank of Korea--the central bank--to use in the pursuit of its monetary policy objectives. One reason is that the amount of treasury bills issued and outstanding has not been large enough to conduct open market operations. In some years, such as 1983-85, there were no treasury bills outstanding at year-end and during 1969-76 there were no treasury bills issued at all. In addition, although there is some trading of treasury bills in a secondary market, there is no competitive bidding for the bills in the primary market. Instead, the

issue system is administered by the Bank of Korea, with the issues being more or less forced on the underwriters who do not find the bills attractive.

In lieu of using treasury bills to conduct open market operations in order to influence bank liquidity, the Bank of Korea has instead made heavy use, particularly since 1986, of Monetary Stabilization Bonds (MSBs) that are a direct obligation of the Bank of Korea. The issue of these bonds was first authorized in 1961 as a result of the passage of the Stabilization Bonds Act of that year. The Act authorizes the Bank of Korea to issue shorter-term bonds in its own name under terms specified by the Monetary Board, and, if appropriate, to repurchase the bonds prior to maturity. As their name implies, the MSBs are to be used to stabilize monetary conditions. The Bank of Korea also issues Foreign Exchange Stabilization Fund bonds that carry various maturities up to five years.

Although the MSBs are referred to as "bonds," government bonds in Korea can have relatively short maturities. The MSB maturities range between nine weeks and two years, but are mainly one year or less in maturity. Most Korean government bonds other than MSBs have a maturity of about five years or less. There are no issues of national treasury bonds per se in Korea, but there are issues of other government bonds, such as national investment bonds and national housing bonds.

Issues of MSBs were relatively small until 1973 when the yield on the MSBs was increased. The MSBs began to be issued in larger amounts after 1982 and in very large amounts in the late 1980s. For example, the amount outstanding rose from 1.9 trillion won at the end of 1985 to 18.0 trillion at the end of 1989, by which time the MSBs were the largest

component of the Korean money market. Excluding the interbank call market, MSBs accounted for 49 percent of the outstanding money market balances at the end of 1989.

The main factor contributing to the large increase in MSBs in recent years has been the country's large surpluses in the current account of the balance of payments through 1989. In 1990 there was a deficit of \$2.2 billion. These surpluses were potentially expansionary and the Bank of Korea needed an instrument to absorb the excess liquidity created by the current account surpluses. To offset the expansionary impact from the surpluses, the Bank of Korea sold MSBs heavily during 1986-89. The amount of MSBs outstanding at year-end was as follows: W. 1.9 trillion (1985); W. 4.3 trillion (1986); W. 9.0 trillion (1987); W. 16.3 trillion (1988); and W. 18.0 trillion (1989). To put these amounts in perspective, MSBs outstanding at the end of 1989 were equal to 42 percent of the money supply (M_2A). The Bank of Korea's use of MSBs to reduce liquidity helped to keep the annual rate of increase in consumer prices to single-digit levels through 1990.

Since 1986, the Bank of Korea has had five types of financial institutions serve as underwriters for the issues of MSBs in the primary market. These are commercial banks, investment trust companies, securities companies, insurance companies, and investment finance companies. There is reportedly a compulsory allotment of the bonds by the Bank of Korea to various financial institutions.⁶ In the primary dealers market for the bonds, the main buyers have been commercial banks,

6. "The Bond Market in Korea," (mimeo.), Ssangyong Investment and Securities Company, Seoul, 1987, p. 8.

savings institutions, securities companies, insurance companies and various nonbank financial institutions.

As is the case with United States treasury bills, MSBs are sold on a discount basis. However, the Bank of Korea specifies both the price and the amounts to be offered for the respective maturities. While a wide range of maturities are available, most of the maturities are under one year. Because the Bank of Korea generally specifies a below-market rate for the MSBs in the primary market, the bonds are not attractive to most initial buyers--hence the necessity to dispose of the bonds through the Bank's administrative allocation system.

In the secondary market, however, the bonds are sold at a substantial discount and this has made them attractive to various buyers--including the foreign branch banks in Korea. (The foreign banks are not required to participate in the compulsory allotment.) Because of the bonds' more attractive yield in the secondary market, the secondary market for MSBs in Korea tends to be quite active.

As is evident from the above, the rapid growth of the MSB market through 1989 was due primarily to the large current account surpluses which necessitated heavy sales of MSBs by the Bank of Korea to offset the potentially inflationary impact of the current account surpluses. In this regard, the MSBs have been a very important and useful instrument in holding down the rate of inflation in Korea. The amount of treasury bills available would have been too small to do the job.

However, as indicated by the Bank of Korea's annual reports, the large volume of MSB issues impacted adversely on the Bank of Korea's finances in 1986 and 1987, and the Bank experienced negative net profits of 57 billion won and 87 billion won in those years, respectively. Total

operating income in those years was 1,036 billion won and 1,327 billion won, respectively. For this, as well as other reasons, it would be unwise to continue in the medium- to long-term to continue to use the MSBs as an important instrument of monetary policy. It would be better to use national government treasury bills for this purpose.

There are several reasons for this. First, it would not be a good long-term policy to have the central bank experience annual losses in its operations. This might be tolerated on a short-term basis, but not in the long run. Such continued losses, which would clearly indicate that something was wrong, are likely to impact adversely on the financial community's confidence in the bank, and the losses might also hamper the central bank's ability to carry out other important operations. Second, for the central bank to carry out successful open-market operations, it is crucial in the long run that the yield on the instruments be at market rates. But in some cases, such as in Korea, the central bank's power and authority over the banking system allow it to simply allocate the issues of MSBs to various financial institutions. This contributes to a misallocation of financial resources. If the national government, instead of the central bank, were the issuer of the securities, there would likely be pressure on the national government to sell its securities at market rates, which would be desirable, in order to make the weekly auctions successful--particularly if there were no "captive" buyers such as the central bank or other government institutions. With the national government's short-term securities trading at market prices, this would help the central bank greatly in carrying out market-based open market operations.

Relying on national government treasury bills would, of course, involve expanding the volume of issues of treasury bills in Korea and allowing the rate on the bills to move to market levels. At the same time, it would be appropriate to phase out the issues of MSBs. Since the disappearance of the current account surplus in 1990, the outstanding amount of MSBs has leveled off at roughly 16 trillion won.

Taiwan.--Like Korea, Taiwan also faced a problem in the 1980s of an excessive expansion of the money supply due to large current account surpluses in the balance of payments. Initially the Taiwan authorities absorbed the excess liquidity by issuing relatively large amounts of Class B treasury bills in 1983-85. Taiwan's Class B treasury bills are obligations of the central bank and are issued for monetary control purposes. Class A treasury bills are obligations of the government that are issued basically for fiscal policy purposes. With the exception of a single three-month issue in November 1985, Class A treasury bills have not been issued by the government since at least the early 1980s, mainly because the budget has been in balance or nearly in balance during this period. The central bank's Class B treasury bills carried maturities of 91, 182 and 364 days, and trading was very active in the secondary market.

The sharp expansion in the issue of treasury bills in 1983-85 worked for a while to absorb liquidity, partly because the treasury bills were legally acceptable assets that the banks could hold to meet the central bank's minimum liquidity ratio, and the bills could also be used as collateral in commercial bank borrowing from the central bank. The large issues of treasury bills helped to keep the rate of inflation in check. However, eventually the authorities ran into a problem in issuing

additional treasury bills in the mid-1980s due to a government law prohibiting the issuance of Class B treasury bills in a total amount greater than 20 percent of the government's expenditures budget. This problem was later eased substantially in November 1987 when the government raised the ceiling from 20 percent to 40 percent. But in the meantime, the Central Bank of China needed some instrument to offset the large current account surpluses which were continuing to rise.

Since the amount of Class B treasury bills that the central bank was permitted to issue was insufficient to absorb all of the excess liquidity, the central bank in 1985 began to start issuing again its own obligations in the form of certificates of deposit (CDs) with maturities of six months, one year and two years. (The central bank first began issuing its own CDs in relatively small amounts back in October 1973, but during 1979-84 there were no central bank CDs outstanding at year-end.) Treasury bill issues began to level off and decline moderately in 1985-87, but central bank CDs outstanding rose from NT\$ 27 billion at the end of 1985 to NT\$ 399 billion a year later, and to NT\$ 948 billion at the end of 1987. This represented a very large year-to-year increase in this instrument, as the money supply (M_1B) at end-1987 was NT\$ 1,568 billion. The operation was generally successful in absorbing excess bank liquidity and in holding down the rate of increase in consumer prices to less than 2 percent per year through 1988.⁷

As time passed, the current account surpluses diminished in size and the amount of treasury bill issues was reduced. However, the amount

7. For additional details on the central bank's anti-inflationary operations in the mid-1980s, see "Monetary Policy in Taiwan, China," Robert F. Emery, International Finance Discussion Paper, No. 313, Board of Governors of the Federal Reserve System, Wash., D.C. Nov. 1987.

of central bank CDs remained relatively high through the early summer of 1990 and later declined somewhat as the annual inflation rate rose from 1-1/4 percent in 1988 to about 5 percent in early 1991. This prompted additional central bank issues of treasury bills and CDs in 1991. Combined with low import prices, the rate of inflation decreased and in December 1991 the consumer price index was 4.4 percent higher than a year earlier. It is apparent that the central bank's operations with its own obligations--treasury bills and CDs--were successful in preventing a high rate of inflation in Taiwan.

Indonesia--Indonesia is one of the more interesting countries of the six examined here since it has experimented actively since 1984 with two money market instruments--one of which is a central bank obligation--in carrying out monetary policy. This use of money market instruments became necessary after the authorities in June 1983:(1) eliminated the direct ceilings on bank credits; (2) abolished a large portion of the interest rate ceilings on deposits; and, (3) assigned Bank Indonesia--the central bank--a new role in providing liquidity to the banking system. It quickly became evident that Bank Indonesia needed some kind of new instrument to control bank liquidity. It was not possible to use government securities, such as treasury bills, since Indonesia has no national government debt securities outstanding due to a parliamentary resolution prohibiting domestic borrowing (except directly from the central bank) by the government to finance budget deficits. Therefore, Bank Indonesia decided to issue its own obligations in the form of central bank certificates.

The customary name for this certificate is SBI, from Sertifikat Bank Indonesia, and the central bank began to issue SBIs on February 1,

1984. In the beginning the main buyers were the five large state commercial banks that had roughly 70 percent of the assets of the banking system at the time. Although the SBIs are issued in the form of a bearer certificate--a direct obligation of the central bank--Bank Indonesia has declined to redeem any SBIs prior to maturity. Later, in August of 1985, holders of SBIs were authorized to discount the SBIs at FICORINVEST, a financial intermediary owned largely by Bank Indonesia that has served as a marketmaker for SBIs.⁸

The SBIs were initially offered by Bank Indonesia each Wednesday on a tap basis. But a month and a half later in mid-March 1984, the system was changed to a weekly auction. Although this moved the issue system away from being passive, the interest rate on the SBIs was still controlled as Bank Indonesia mandated a cut-off rate for the SBIs--that is, the maximum yield that purchasers of SBIs could receive. This cut-off rate was not announced to the market and the employment of the cut-off rate system meant that demand, and not supply determined the quantity of SBIs provided to the market. This created problems later in sales of SBIs to absorb bank liquidity as the supply of SBIs was not sufficiently flexible.

As Bank Indonesia gained more experience during 1984 with SBIs, it found that the SBI was not a satisfactory instrument for injecting liquidity into the banking system. This was mainly because of Bank Indonesia's self-imposed restraint to not purchase any outstanding SBIs prior to maturity. Some way had to be found to inject funds into the banking system, both on a short-term and long-term basis, without relying

8. For a more extensive explanation of the SBI and the Bank Indonesia's SBI operations, see Robert F. Emery, The Money Markets of Developing East Asia, Praeger, New York, 1991, pp. 58-65.

on the central bank's discount window. In addition, Bank Indonesia hoped to broaden the existing money market by adding a new instrument that would, at the same time, be helpful in achieving its monetary policy objectives.

Accordingly, Bank Indonesia introduced the SBPU on February 1, 1985. Indonesia's SBPU is basically commercial paper that has been endorsed by either banks or Indonesia's nonbank financial institutions. There are four different types of SBPUs, but generally the most common has been promissory notes issued by eligible banks and nonbank financial institutions when borrowing from other banks or nonbank financial institutions. The main element that distinguishes an SBPU from other commercial paper is that the SBPU is endorsed by a bank or nonbank financial institution. In addition, regular commercial paper issued by nonbank financial institutions is not used by Bank Indonesia for monetary control purposes.

To make the SBPU attractive to the market, the central bank ruled that SBPUs would not be subject to legal reserve requirements, and, during certain periods, SBPUs could be rediscounted at the central bank. FICORINVEST began to trade in SBPUs in February 1985, and as time passed, most of the rediscounting of SBPUs was with FICORINVEST, which in turn rediscounted the SBPUs with Bank Indonesia. The central bank, rather than FICORINVEST, turned out to be the main source of funds supporting the SBPU market. For example, of the 1.1 billion rupiah in SBPUs outstanding at the end of 1986, Bank Indonesia had rediscounts of SBPUs outstanding equal to 89 percent of all SBPUs outstanding.

SBIs and SBPUs were used actively by Bank Indonesia to influence bank liquidity. For example, during the 15 months prior to the October

27, 1988, financial reforms, Bank Indonesia auctioned seven-day SBIs on a daily basis to influence the reserve positions of the banks. In conjunction with the October 27, 1988, financial reforms, Bank Indonesia expanded the SBI maturities, increased the range of denominations and changed to a single weekly auction. However, because the central bank has generally invoked a cut-off rate for the SBIs, and since this rate has often been below other money market rates, the SBIs have not always been attractive to potential purchasers.

In retrospect, the use of of SBI sales by Bank Indonesia as its main instrument of monetary control has been less than successful. Twice, in June 1987 and again in February 1991, the central bank has had to order the large government enterprises with deposits in the state banks to shift those deposits into SBIs in order to offset deductible capital outflows. This, of course, reduced bank liquidity sharply and raised interest rates, but was generally successful in dampening the previously heavy outflow of capital. However, this is not the most desirable way to conduct monetary policy. In general, it would be much better to utilize open market operations, employing the existing SBIs and SBPUs.

The main problem has been that the interest rate on the SBIs has been controlled at a level below free money market rates. In addition, the total supply of SBIs has, at times, been too low to conduct effective open market operations. In the long run, SBIs are not likely to be a viable instrument for carrying out open market operations unless the supply of SBIs is expanded and the interest rate on the SBI is determined freely by demand and supply in the market.

Another drawback to the SBI arrangement is that it has operated, so far, only to withdraw reserves from the banking system and not to add reserves. This is because of Bank Indonesia's self-imposed restraint of not buying SBIs before maturity. This arrangement has prevented the central bank from carrying out bona fide open market operations in SBIs. Bank Indonesia has had to use purchases of SBPUs as its instrument for adding reserves to the banking system. A viable secondary market for SBIs has not developed since their introduction in 1984, partly because FICORINVEST has mainly served as the central bank's agent in the market and not as an active dealer.

There are several lessons that can be learned from Indonesia's use of new money market instruments in the conduct of monetary policy. One important lesson is that it is advisable to first develop a viable money market instrument that can stand by itself without central bank or national government support. If this is not done, the market for the instrument will always be somewhat artificial and poorly suited for open market operations. Bank Indonesia became so absorbed with using SBIs as an instrument of monetary policy that it neglected to develop SBIs as a component of the money market that could stand by itself.

Part and parcel of this aspect is the fact that the interest rate for the SBIs has been too controlled. The rate has not been a true market rate determined by the free forces of demand and supply. Thus, it would be appropriate to move away from the central bank's system of limited supply and cut-off prices--to a true auction system for the SBIs.

Because the yields on SBIs have generally been below other money market rates, SBIs have not been popular with brokers or dealers, despite the government's attempt in January 1989 to establish 15 money market

makers and two brokers, viz., FICORINVEST and Bank Duta. Viable secondary markets in SBIs and SBPU's have yet to emerge on a medium- to long-term basis. One step which the authorities could take in order to help the SBI play the role of a treasury bill in Indonesia would be for the central bank to discontinue its policy of not buying SBIs prior to maturity. If Bank Indonesia were to freely buy and sell SBIs in the open market--and at market rates--this would create the appropriate conditions for undertaking true garden variety open market operations. Given Indonesia's open economy, this would go a long way toward improving Bank Indonesia's control of bank liquidity and hence reducing the danger of occasional flight of capital.

Thailand.--Although the Thai central government issues bonds and treasury bills, the market in these instruments is not suitable for use by the Bank of Thailand, i.e. the central bank, to carry out direct open market operations in its pursuit of monetary policy objectives. There are several reasons for this. Thailand's government bond and treasury bill market is basically a primary market, and an active, bona fide secondary market does not exist in these instruments. However, the Bank of Thailand does sell treasury bills from its own portfolio, and purchases treasury bills from others before they mature. Second, there are no brokers or dealers making a market in treasury bills, with most of the outstanding bills being held by the Bank of Thailand or the government's Exchange Equalization Fund. (The latter is used by the authorities to stabilize the exchange rate for the baht, the Thai currency.) For the weekly treasury bill auctions, the Bank of Thailand serves as underwriter and purchases the balance of any unsold treasury bills. Because the yields on treasury bills are usually below the

interest rates on other money market instruments, treasury bills are not a very popular investment and commercial bank holdings of treasury bills have been low or nonexistent in recent years. Third, there are large fluctuations in the amount of treasury bills outstanding and during 1984-89 there was no growth in the market, with the outstanding amount not exceeding 12 trillion baht. This was because the government has a self-imposed ceiling on the total amount of treasury bills that can be outstanding. An illustration of the sharp fluctuations that can occur happened in 1988 when the total amount of treasury bills outstanding dropped from 12 billion baht at the end of September, to 3 billion baht a month later at the end of October. During February-August of 1990 there were no treasury bills outstanding.⁹

The Bank of Thailand's main instruments of monetary control have been changes in bank reserve requirements, interest rate ceilings, and, since 1986, the use of repurchase agreements (RPs). Since September 1979, each commercial bank has been required to maintain a cash reserve equal to 7 percent of the bank's total deposits. This reserve consists of a combination of deposits at the central bank, vault cash and government securities. The central bank has the power to vary the proportions that comprise the 7 percent requirement.

The central bank also has the power to set interest rate ceilings for both bank deposits and loans. During 1989-91, however, the central bank generally eliminated the interest rate ceilings for most types of deposits and raised the interest rate ceiling for bank loans. The central bank also sets limits on commercial banks' net foreign asset position and net foreign liability position.

9. Quarterly Bulletin, Bank of Thailand, Bangkok, December 1990, p. 39.

Since the late 1980s, the central bank's main monetary instrument has been the use of repurchase agreements (RPs) with commercial banks in order to influence bank liquidity. As part of a money market development project, the central bank introduced a government bond repurchase market in April 1979, but played a largely passive role in the market until the mid-1980s. Since May 1986, however, the central bank has intervened directly in the RP market--as opposed to merely bringing together borrowers and lenders in the market. This central bank intervention in the RP market was able to reduce, to some extent, bank liquidity in line with the central bank's monetary objectives.

In 1987, however, the Bank of Thailand became concerned that its intervention in the RP market would not be able to absorb all of the bank liquidity that it wanted to absorb. This was partly due to the fact that the central bank's own portfolio of bonds had fallen to such a low level that its anti-inflationary operations in the RP market were threatened. It therefore decided in May 1987 to issue 2 billion baht of its own 180-day obligations in order to absorb the excess liquidity in the banking system. The bonds,¹⁰ which were issued in 100,000 baht denominations at a flat 6 percent interest rate, were mainly sold to the commercial banks and the Government Savings Bank. On the whole, the operation was generally successful in reducing bank liquidity, and consumer prices in 1987 were up only 2.5 percent over 1986. A second set of bonds was

10. The term "bond" is used by various East Asian countries, Korea being another example, for government obligations with original maturities under one year.

issued in February 1988 to absorb excess liquidity in the banking system--again in an amount of 2 billion baht with a 6 percent interest rate--but this time the maturity was set at one year.

Assessing the Bank of Thailand's RP operations, they have added a useful additional instrument to the central bank's arsenal of monetary weapons, and they have been helpful in controlling bank liquidity. However, the RP operations, which generally use bonds rather than treasury bills as the underlying security, fall short of being a full-fledged open market operation. As presently constituted, the operating arrangements are awkward. Because its charter forbids it to act as a broker, the Bank of Thailand has to serve as the principal for each and every RP transaction. This is, of course, not a problem where the central bank is acting for its own account, but the arrangement has restricted a fuller development of the RP market. These arrangements are likely to hinder, in the long-run, the development of a viable government securities market. In addition, the interest rate in the RP market has, at times, been subject to control. For example, near the end of 1986 the central bank set a floor RP rate as it was concerned that the general level of interest rates might decline too far.

With regard to the Bank of Thailand's issue of its own obligations in May 1987 and February 1988, these actions appear to have been a largely ad hoc reaction to a situation in which the central bank could not readily use RP operations or some other instrument to mop up bank liquidity. As far as can be determined, the two bond issues appear to have been a one-time arrangement, with no additional central bank bonds having been issued since February 1988. The Bank of Thailand is

reportedly disappointed that a secondary market did not develop in its bonds as it had expected.

Thailand's main problem, if it is to use open market operations as an active monetary policy instrument, is to develop a large and viable secondary market in government securities--preferably those with short maturities. Some of the basic steps needed to accomplish this goal involve letting the interest rates on government securities rise to true market levels and expanding the supply of short-term government securities so that there is an adequate supply for conducting open market operations. It is also likely that the central bank would have to encourage active trading in government securities by establishing primary government securities dealers and an active secondary market for the securities.

Hong Kong--Hong Kong does not have a central bank, per se, as it is an overseas territory of the United Kingdom. Hence its situation differs from some of the economies cited earlier--such as Korea, Taiwan and Indonesia--where the central banks have issued their own obligations. Some central bank functions in Hong Kong, such as the note issue, have been performed by two private banks, viz., the Hongkong and Shanghai Banking Corporation, and the Standard Chartered Bank. In addition, the government fixes by law a minimum liquidity requirement for banks, but the requirement is largely static and has remained unchanged in recent years. However, Hong Kong does have a government Exchange Fund and the authorities have given it increasing monetary control powers since 1988.

The Exchange Fund was established in 1935, basically to maintain a stable exchange rate for the Hong Kong currency.¹¹ Prior to July 1988, its main method for influencing bank liquidity was through its purchases or sales of foreign exchange in the foreign exchange market, or through its borrowing or lending of Hong Kong dollars in the interbank market. These measures were not completely satisfactory and in July 1988 the government introduced the New Accounting Arrangement between the Exchange Fund and the Hongkong and Shanghai Bank, the latter having served--and continuing to serve--as clearing agent for the banks. This arrangement made the Exchange Fund, in effect, the ultimate provider of liquidity to the interbank market. It thus allowed the Fund to exert an important influence over the amount of liquidity and hence the level of interest rates in the interbank market--all with the ultimate objective of maintaining exchange rate stability.¹²

Still, the government desired to enhance further the Exchange Fund's ability to exert monetary control over the economy. In his budget speech in March 1989 the Financial Secretary announced plans for the Exchange Fund to issue short-term bills that would be used for purposes of monetary control and not to finance public expenditures. Appropriate legislation was passed in February 1990 which exempted the new Exchange Fund bills from the profits and stamp duty taxes, and authorized the government to appoint some 118 business firms to serve as dealers in the new Exchange Fund bills market with 14 of these being designated as market-makers. The market-makers are required to quote both buying and

11. For additional details on the Exchange Fund and its operations, see Emery, The Money Markets of Developing East Asia, *op. cit.*, pp. 13-15.

12. For a more complete description of the New Accounting Arrangement, see *op. cit.*, pp. 14-15.

selling prices. The total borrowing limit set on the issue of 91-day Exchange Fund bills was HK\$ 50 billion or about US\$ 6.4 billion.

During the 1980s the Hong Kong government did not issue securities with one exception. In 1984 the government issued a HK\$ 1 billion, 10 percent, five-year bond. Although negotiable, most investors held these bonds to maturity, with the result that no secondary market in the bonds developed.

The government began to issue Exchange Fund bills in March 14, 1990. Issued in weekly amounts of about HK\$ 300 million, the Exchange Fund issued HK\$ 3.8 billion during the first 13 weeks of the operation. These bills had a minimum denomination of HK\$ 500,000 and a 13-week maturity. The bills were sold at a discount in a manner similar to the way that United States treasury bills are issued. The average accepted yield on March 14, 1990, was 8.04 percent, but by June 6, 1990--13 weeks later--the yield had moved up to 9.04 percent. The operation was so successful that in the next 13-week cycle the weekly amount was raised to HK\$ 400 million. Later, on October 30, 1990, the government also began to issue 182-day Exchange Fund bills every two weeks, and in late February 1991, issued HK\$ 200 million of one-year bills. Exchange Fund bills have been well received by the banks, which have been the main purchasers so far. Since March 1990, the government has generally offset the contractionary impact from the sale of bills by injecting approximately the same amount of funds back into the interbank market by means of the New Accounting Arrangement.

The Exchange Fund bills are a direct, unsecured, unconditional, general obligation of the Hong Kong government. They are in a paperless form as they are recorded in a bills register maintained in the Monetary

Affairs Branch of the Government Secretariat. The bills are not backed by the general revenue of the treasury and the proceeds from the bills, by law, cannot be used to finance public expenditures. Although holders of Exchange Fund bills do not normally rediscount the bills with the Exchange Fund, the Secretary for Monetary Affairs has given an undertaking to the market-makers of the Exchange Fund bills that he will make a bid to them for any bills that they may offer.

Since July 1988, the Hong Kong authorities have made important use of the New Accounting Arrangement, as well as the Exchange Fund bills market, to influence bank liquidity. For example, following the June 4, 1989, crackdown on pro-democracy demonstrators in Tiananmen Square in China, the authorities injected about HK\$ 194 million into the interbank market by means of the accounting arrangement to counter the heavy withdrawal of funds from certain Chinese banks in Hong Kong. After things had settled down, there was a subsequent withdrawal of HK\$ 195 million from the interbank market in August 7, 1989.¹³ The issue of Exchange Fund bills since March 1990 has provided the authorities with an additional instrument to influence liquidity in the interbank market. In March 1991, the government described the monetary aspects of its Exchange Fund bill operation as follows:

With the launching of the Exchange Fund bills programme in mid-March 1990, the Exchange Fund operates more frequently in the local money market. Under normal circumstances, the operations are either for the purpose of relieving a shortage of liquidity arising from a take-up of Exchange Fund bills or to mop up surplus liquidity arising from a redemption of these bills. But if the need arises, the Exchange Fund may, through under- or over-compensating the effect of the issue or redemption of Exchange Fund bills, or through buying or selling

13. See Third Quarter Economic Report: 1989, Economic Services Branch, Government Secretariat, Hong Kong, November 1989, p. 36.

these bills in the secondary market, produce a level of interbank liquidity that is appropriate for ensuring exchange rate stability.¹⁴

Unfortunately, official data are not readily available to indicate the extent to which the Exchange Fund has been intervening in the secondary market for the bills, or adjusting its issue and redemption of the bills to influence interbank liquidity. The basic objective of the Exchange Fund's operations, as indicated earlier, is to maintain the stability of the Hong Kong dollar in foreign exchange markets, and to date the authorities have been able to maintain the linked exchange rate of 7.8 Hong Kong dollars to one U.S. dollar that was established in October 1983.

On the whole, the government has managed the introduction of Exchange Fund bills into the local money market well, and it now has an additional monetary instrument besides the three indicated earlier, *viz.*, Exchange Fund borrowing and lending in the interbank market, changes in the net clearing balance under the New Accounting Arrangement, and purchases and sales of foreign exchange by the Exchange Fund. The government's stated objective in establishing the Exchange Fund bills market has been to provide itself with a flexible, low-cost and cost-effective instrument for the conduct of monetary policy. In establishing the Exchange Fund bills market, the government wisely arranged for 14 firms to serve as market-makers. These 14, by standing ready to buy and sell Exchange Fund bills at daily quoted prices, have provided liquidity to the market. An additional aspect that has improved the popularity of the bills is the official decision to make the bills tax exempt. Income

¹⁴. 1990 Economic Background, Economic Services Branch, Government Secretariat, Hong Kong, March 1991, p. 37.

from the bills is not subject to the profits tax that is imposed on interest income and the Exchange Fund bills are the only financial asset in Hong Kong that have this tax exempt feature.

One advantage that the government has in using the Exchange Fund bills market to influence bank liquidity is that it can act with less publicity than when it acts to change the net clearing balance. The government has continued, however, to supplement its Exchange Fund bill operations with Exchange Fund lending and borrowing in the interbank market, and sales and purchases in the foreign exchange market. All of these operations can be used to influence money market conditions, especially the trend in short-term interest rates, in defense of the linkage of the Hong Kong dollar to the U.S. dollar.

In conclusion, the Exchange Fund bills program has improved Hong Kong's monetary management as it has provided an additional useful instrument for carrying out open market operations to ensure exchange rate stability. The program has also been helpful in that it has provided a benchmark short-term interest rate for government securities that can be used in connection with the issue of private money market instruments. Various reports indicate that a moderately active secondary market has developed in the bills, which will be helpful for the Exchange Fund as it carries out open market operations.

Encouraged by its success with 91-day, 182-day and one-year Exchange Fund bills, the government also began to issue a modest amount of two- to three-year bonds--which the government calls "Dragon Bonds"--in November 1991. Like the Exchange Fund bills, they have been issued in a paperless form, i.e. on a book entry basis. In addition to bonds, the May 15, 1991, authorizing legislation, viz., the Loans (Amendment) Bill

1991, will also allow the government to issue promissory notes or other instruments, the proceeds of which can be used to help finance capital expenditures in Hong Kong for such projects as a new airport and port facilities.

C. Concluding Observations

As the above cases indicate, there has been a greater use of money market instruments in the conduct of monetary policy by the central banks in the main East Asian developing countries in the past decade. Of the eight economies listed at the beginning, the central banks in six of the economies have issued their own obligations at one time or another for purposes of monetary control, and, for some central banks, these obligations have been their principal means of influencing bank liquidity. Currently central bank money market obligations are continuing to be used actively by the central banks--or their equivalent--in Indonesia (SBIs), Korea (MSBs), Taiwan (TBs and CDs) and Hong Kong¹⁵ (Exchange Fund bills). Even the Philippines, as indicated earlier, is continuing to make some use of the central bank obligations often known as "Jobo" bills, and the Bank of Thailand has twice issued its own short-term bonds to absorb excessive bank liquidity in recent years.

Of the six economies examined here, the central bank in the Philippines is the only one to conduct its open market operations using mainly national government treasury bills. All of the other central banks in the remaining economies have had to depend instead on carrying out open market operations using short-term obligations that the central

15. Hong Kong's Exchange Fund, obviously, is not a central bank. However, it currently engages in operations aimed at controlling bank liquidity and interest rates, and in that sense operates in a manner similar to a central bank.

bank itself has issued. In a sense, the central banks were forced to do this for a variety of reasons. In Indonesia, a parliamentary resolution prevents the issue of national government securities. In Taiwan, Class A treasury bills are rarely issued by the government, mainly because there is little or no deficit financing. In Korea and Thailand, the low and unattractive yield on treasury bills has kept the market small, not to mention the unreliable and erratic supply of treasury bills. In Hong Kong, the only issue of government securities in the past 12 years--except for the very recent bond issues in November 1991--occurred in 1984 when the government issued HK\$ 1 billion in 10 percent bonds with a five-year maturity. In short, open market operations in national government treasury bills have not been a viable alternative for these central banks, so they have had to fall back on their own central bank obligations.

Not all of the open market operations in central bank obligations have gone smoothly. In Indonesia, the market for the central bank's certificates (SBIs) has remained somewhat artificial due to the central bank's control of the interest rate on the certificates and heavy central bank support, or erratic intervention, in the market. In the Philippines, the central bank requirement in the 1970s that banks hold treasury bills as part of their secondary reserves, and the payment by the government of below-market rates on the bills, caused the treasury bill market to virtually disappear by 1973.¹⁶ It was only after most interest rate ceilings were gradually eliminated during the early 1980s that the treasury bill market was able to become a viable market.

16. See Michael T. Skully, ed., Financial Institutions and Markets in Southeast Asia, St. Martin's Press, New York, 1989, p. 321.

Although the Philippines is the only country out of the six examined here to use national government treasury bills as a major instrument in carrying out monetary policy, this is likely to be the best approach in the long run for the other countries. When a central bank is forced to use its own obligations--as in Korea--this has often led to losses and a weakening of the central bank's financial condition as discussed earlier in the section on Korea. In addition, central banks have found it necessary, at times, to force their obligations on certain buyers, and this has tended to create undesirable distortions in the allocation of financial resources.

Measures should be taken, over an extended period of time, to develop a sound and viable national government treasury bill market that can be used by the central bank in its monetary policy operations. In the case of Indonesia, this would necessitate some revision of the parliamentary resolution that prevents the issue of treasury bills. While some monetary instruments--such as discount policy, bank reserve requirements, and foreign exchange swaps--can be helpful in achieving monetary policy objectives, a well-developed open market operation is the best instrument for quickly and flexibly controlling bank liquidity.

In the first section of this paper, the point was made that--assuming a viable money market instrument exists--there are certain advantages that a central bank obtains if it uses open-market operations in implementing monetary policy, as opposed to reliance on traditional instruments such as adjusting reserve requirements, imposing direct credit controls, or changing the discount rate. Being market based, open market operations are likely to be less distortionary to the interest rate structure, whereas mandated changes in the level of the discount

rate might, at times, cause undesired distortions to the interest rate structure. In addition, open market operations operate indirectly on the amount of liquidity in the financial system and are consequently less obtrusive than using direct credit controls or interest rate ceilings. Lastly there are certain other benefits from using open-market operations: (1) it is possible to change liquidity by either small, medium, or large amounts; (2) the central bank is able to act quickly; (3) there are several ways in which open market operations can be carried out, such as through direct purchases, through repurchase agreements (RPs), or through reverse RPs; and (4) the open market operations can be carried out quietly without public fanfare when it is appropriate to do so. All of these enhance the amount of discretionary power granted to the central bank.¹⁷

Finally, whether national government treasury bills, or some form of central bank obligation is used for the open market operations, it is very important that the interest rate for the instrument be market-determined. This is mainly because it is very difficult to conduct effective open market operations when the yield on an instrument is below free market rates and is thus unattractive to potential buyers. In addition, it is also very important that there be a good, steady supply of the instrument to the market, so that shortages of the instrument do not hamstring the open market operations or create undesirable price fluctuations.

17. For a more detailed discussion of the benefits from using indirect methods of monetary control, see "Monetary Policy Instruments for Developing Countries," Gerard Caprio, Jr. and Patrick Honohan, Working Paper No. 528, World Bank, Washington, D.C., October 1990.

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