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UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

**FINANCIAL MARKET DEVELOPMENT AND ITS  
IMPLICATIONS FOR MONETARY POLICY IN  
THE PHILIPPINES**

**FINAL REPORT**

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# FINANCIAL MARKET DEVELOPMENT AND ITS IMPLICATIONS FOR MONETARY POLICY IN THE PHILIPPINES

## EXECUTIVE SUMMARY

The primary objective of this study is to assess the effects of financial market innovations such as financial derivatives on the controllability of the money stock and on the connection between the money stock (intermediate monetary target) and the final goal variables of monetary policy (final monetary target). "Have these developments in the Philippine financial system altered the efficacy of a quantitative-based monetary policy?" is the question upon which the study focuses.

The technical assistance requested by the Bangko Sentral ng Pilipinas (BSP) from USAID was undertaken by a Barents Group team of economists and financial market experts. The technical assistance (TA), funded under the USAID Financial Sector Development Project, was accomplished during a one-month on-site tenure during July-August 1998. The five-member team consisted of three US economists, a US banking sector regulator, a Philippine financial sector economist and a Philippine financial market practitioner. The US economists and financial sector regulator each have had substantial monetary and financial policy experience in the US Federal Reserve System. Their expertise was complemented and focused by the knowledge and experience in Philippine financial institutions and policies provided by the Philippine financial experts.

An aide memoir was delivered at a briefing at the end of the mission, and a draft final report was sent to the BSP in September 1998. This revised final report reflects two sets of comments on the draft report by the BSP received in October and at the end of November 1998.

The TA assessed the impact of derivatives trading on the efficacy of a quantitatively based monetary policy. This approach to monetary policy is one in which an inflation target or other ultimate objective of monetary policy is achieved by the control of an intermediate target, such

as the monetary base (MB), M1, M2, M3 or M4. Among the questions the BSP asked the team to address are

- ◆ Is such a policy workable in the Philippines financial system as it currently exists?
- ◆ What is the extent and scope of financial market innovations in the Philippine banking sector?
- ◆ Are these instruments socially productive and, if so, what regulatory changes if any should be implemented to supervise institutions that issue and use them?
- ◆ What is the state of regulatory oversight of the banking system, and is it adequate to control the newly introduced innovations and instruments?
- ◆ Has the introduction of financial market derivatives and other innovations weakened the empirical relationships between the intermediate targets of monetary policy (e.g., M1) and the BSP's ultimate goal (inflation)?
- ◆ If such a quantitative policy is feasible, what is the best intermediate target for monetary policy—MB, M1, M2, M3 or M4?
- ◆ How have other emerging market economies dealt with these issues of financial market development?
- ◆ What is the outlook for the Philippine banking sector in relation to the region?

Overall, the findings of the study indicated that the impact of financial market innovations has been, as yet, slight. The results also are quite supportive of the feasibility of a quantitatively based monetary policy. The empirical relations between the growth rates of narrow concepts of money (the monetary base and M1) and the rate of inflation remain tight, sustaining the efficacy of money as an intermediate target. In part, this reflects the uniformity of reserve requirements against all classes of peso-accounts, which obviates the incentive to establish sweep arrangements. Since reserve requirements are the same for all classes of peso-accounts, there would be no reduction in a bank's total required reserves from shifting account balances from current accounts to time deposits. As a result, the controllability of narrow money has not been impeded in the Philippines as it has been by sweep accounts in the United States and other advanced financial markets.

While new instruments have been introduced into financial markets, their empirical importance is not yet substantial nor does the pace of their spread suggest they will be soon. Consequently, the relation between money and prices will persist for some time. The findings of the study, summarized by report section, are as follows:

**Scope and Growth of Recent Financial Market Innovations in the Philippines** The recent financial market innovations that have widened the choices of consumers of financial services pose challenges to both regulatory and monetary authorities. Some financial instruments are identified as potentially debilitating the usefulness of an aggregate-based monetary policy because they are characterized as deposit substitutes. These are the foreign currency deposits and the trust accounts, the latter including common trust funds, investment management accounts, foreign-denominated trust accounts and other trust accounts. The data clearly support these instruments' characterization as deposit substitutes. As of March 1998, trust accounts were equal to about 40 percent of M3 and foreign currency deposits were about 20 percent. There have also been institutional innovations, such as the establishment of forex corporations and thrift banks. These innovations emerge to circumvent certain regulations that tend to raise the cost of financial intermediation.

**Role of Financial Markets and the Effects of Recent Innovations** In recent years the Philippine Government has expanded the maturity range of the government securities it issues. Further steps are needed to provide the liquidity in government securities that structures most interbank markets, including the establishment of a deep and active repo market for government securities. Currently, reserve requirements and the stamp tax impede the use of repos. Also, short sales of government securities are prohibited-- market participants can sell only what they own and cannot use a substitute. Securities lending and borrowing are not allowed under the Revised Securities Act which mandates that brokers or investors can only trade securities that are in their actual possession.

The use of derivative instruments is not yet a major activity in the Philippine financial markets. It is unlikely, therefore, that derivatives have affected the transmission of monetary policy. In late 1995, BSP circular 102 spelled out the conditions necessary for banks to obtain licenses for derivatives activities. These include minimum capital, hardware, and software, risk management and the like. By mid-1998, 11 banks were authorized to conduct expanded derivatives activities, and one bank had a regular derivatives license. Total derivatives outstanding in June 1998 totaled about \$10 billion with virtually all of this attributable to currency forwards and swaps. Only a tiny amount of currency options--\$13 million—are reported by FCDUs. FCDUs did

show some interest rate derivative activity, with \$252 million of interest rate swaps outstanding with non-residents. Still, interest rate derivatives are not very active. Interest rate derivatives at the regular units of banks in June consisted only of swaps and were a very small \$7 million. No interest rate forwards or options appear to be done by banks in the Philippines.

**Financial Market Regulatory Structure and Oversight** The BSP needs to upgrade its regulatory staff and technology to independently value bank non-exchange traded derivatives, futures and options. It should be able independently to verify expected risks to be charged-off (marked-to-market) and unexpected risks that require a capital allocation under the Basle risk-based-capital standards as soon as the pending amendment to the Philippine General Banking Act is passed adopting the standards in the Philippines. Bank regulation in general, and derivatives regulation in particular, would be enhanced by reducing or eliminating the adverse effects of bank secrecy and examiner legal liability rules. The recently strengthened prompt corrective action policy for resolving troubled banks is a big step in the right direction but will need further strengthening if experience in other countries is indicative. Banks should be required to publish their income statements as they do their balance sheets to further increase disclosure (transparency) of their operations and self-regulation. When the derivatives markets permit, options and futures exchanges should be established to facilitate the liquidity, pricing and settlement of derivatives transactions locally.

**Impacts of Financial Market Innovations on Monetary Policy** A critical issue for the BSP is to gauge the possible impacts on the conduct of monetary policy that could have resulted from financial innovations. Activity in the derivatives market is as yet small. It may be possible to infer effects by examining the affects of previous innovations on the monetary measures used by the BSP as intermediate targets. To do this, the relation between base money and three monetary aggregates—M1, M3 and M4 (equal to M3 + FCDUs)—was examined. The evidence shows that the multipliers of the different aggregates are predictable. Moreover, there exists a tighter relation between base growth and the growth of M1 compared with the more inclusive M3 and M4 measures. Also investigated is the relation between the monetary aggregates and the goal variables of monetary policy, inflation and GNP growth. The evidence is consistent with the notion that the narrower monetary measures—base money and M1—are more useful as

intermediate targets than are M3 or M4. This finding suggests that the effects of financial innovations in the Philippines have not affected the usefulness of a quantitatively based monetary policy.

**Financial Market Developments in Other Emerging Market Economies.** This section reviews a selection of studies of the issues that have arisen in other emerging market economies undergoing financial market liberalization. Among the countries covered are Indonesia, Paraguay, Bolivia, Venezuela, Greece, and Israel. In an annex, V 1, the outlook for the Philippine Banking Sector in relation to that for the Southeast Asia region is discussed.

**Findings and Recommendations** Our assessment of the impact that financial market innovations have had on monetary policy in the Philippines is that there has been no substantive reduction on the efficacy of a quantitatively based monetary policy. We find that bank supervision is generally adept and executed through skilled examiners. Still, there need to be some crucial improvements made in the regulatory structure to ensure the continuation of socially beneficial development of Philippine financial markets generally and the banking sector.

Specifically, we find that

- ◆ The impact of financial market derivatives has been primarily on the broad monetary aggregates, M3 and M4, through the expansion of deposit substitutes.
- ◆ A number of regulatory barriers remain to the broader use of derivative instruments. Improvements in the government securities market also would be helpful to the derivatives market as well as to capital markets in the Philippines.
- ◆ There has been relatively little use of financial market derivatives thus far in the Philippine market, both by type and by volume.
- ◆ There is need for substantial regulatory improvements to broaden the scope of derivatives use and their market. This will require more trained staff and a curtailment of existing secrecy regulation.
- ◆ The effective regulation of commercial banks—including the execution of prompt closure or restriction of troubled banks—is hampered by the individual liability of PSB regulators for

their official acts. This liability hinders the rigorous (and timely) pursuit of the public interest in bank regulation and should be shifted from the individual to the PBS.

- ◆ The recently strengthened prompt corrective action policy for resolving troubled banks is a big step in the right direction but will need further strengthening if experience in other countries is indicative.
- ◆ Bank regulation in general, and derivatives regulation in particular, need to be enhanced by reducing or eliminating the adverse effects of bank secrecy.
- ◆ Financial market innovations, including the introduction of financial market derivatives, have not affected the feasibility of a quantitatively based monetary policy.
- ◆ In the exercise of monetary policy, the narrow monetary aggregates—the monetary base and M1—have a closer relation to the targets of monetary policy than do the broader monetary aggregates—M3 and M4.
- ◆ Since derivatives have a greater impact on the broad monetary aggregates, the closer linkage of inflation with the narrower aggregates is likely to continue even as derivative use is expanded in scope and volume.

The empirical evidence from several emerging markets indicates that derivatives do not increase volatility of asset markets—see Jochum and Kodres (1988). In this study, we report that derivatives have neither diminished the controllability of money nor its connection with inflation. This characterization is strengthened by the outlook for the Philippine banking sector as reported in Annex V 1 which reports on the short- and intermediate-term outlook for as the Philippine financial markets weather the current crisis in the Southeast Asia region.

It is clear that derivatives provide a variety of benefits to market participants by enabling greater specialization, improved pricing and, as a result, more efficient financial markets. The question for regulators is not whether to encourage the development of financial market derivatives, but how best to regulate them, document and enforce their rules in the markets of their underlying assets, and to support the markets in which they are traded. In short, the growth of derivatives use will benefit financial markets in the Philippines without impeding the exercise of a monetary policy based on intermediate monetary targets.

# FINANCIAL MARKET DEVELOPMENT AND ITS IMPLICATIONS FOR MONETARY POLICY IN THE PHILIPPINES

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## **FINANCIAL MARKET DEVELOPMENT AND ITS IMPLICATIONS FOR MONETARY POLICY IN THE PHILIPPINES**

This study of development of the Philippine financial system and its implications for the efficacy of a quantitative-based monetary policy was undertaken at the request of the central bank of the Philippines. The primary objective is to ascertain the effects of financial market innovations such as financial derivatives on the controllability of the money stock and on the connection between the money stock (intermediate monetary target) and the policy goal variables of monetary policy (final monetary target).

The financial innovations so far introduced demonstrate the growing sophistication of the Philippine financial system. However, they have posed some challenges to supervisory and regulatory authorities who are greatly concerned about the safety and soundness of the individual financial institutions as well as the entire financial system. They have also posed some challenges to monetary authorities who are concerned about the effectiveness of the instruments of monetary policy. The newly-introduced financial instruments may have the potential to dilute the relationship between the monetary aggregates, which monetary authorities use as an intermediate target of monetary policy, and certain indicators of economic activity, which are the ultimate targets of monetary policy. If this were the case, then a redefinition of monetary aggregates, which serve as intermediate targets, would be in order to regain the effectiveness of monetary policy instruments.

This study focuses mainly on the latter issue. To provide a background to the empirical analysis that follows, this section describes the major financial innovations, which may have a bearing on the appropriate definition and choice of the intermediate target of monetary policy.

The technical assistance was requested by the central bank of the Philippines, Bangko Sentral ng Pilipinas (BSP), and undertaken by a Barents Group team of economists and financial market experts. The technical assistance (TA) was funded under the USAID Financial Sector Development Project, it was accomplished during a one-month on-site tenure during July-August

1998 with the final report and its revisions completed during September 1998. The five-member team consisted of three US economists, a US banking sector regulator, a Philippine financial sector economist and a Philippine financial market practitioner. The US economists and financial sector regulator—Dr Marcelle Arak, Professor of Finance, University of Colorado (Denver), Dr Rik Hafer, Professor of Economics, Southern Illinois University (Edwardsville), Dr Mack Ott, Director, Barents Group LLC (team leader), and Mr Gordon Eastburn—each have substantial monetary and financial policy experience in the US Federal Reserve System. Dr Mario Lamberte, Vice President, Philippine Institute provided expertise on the Philippine macroeconomy, its financial institutions and its policies for Development Studies. The team was completed by a Philippine financial practitioner, Mr Paul Garcia, Associate, SG Securities Philippines, Inc.

The subject of the TA was the examination of the impact of financial market innovations (including the introduction of financial asset derivatives) on Philippine monetary policy. In particular, the focal issue to be assessed was the impact of derivatives on the efficacy of a quantitatively based monetary policy. This approach to monetary policy is one in which an inflation target or other ultimate objectives of monetary policy is achieved by the control of an intermediate target, such as the monetary base (MB), M1, M2, M3, or M4. Specifically, the BSP asked the team to address four issues concerning the magnitude, scope and growth of recent financial market innovations:

- ◆ Role of financial markets and the effects of recent innovations,
- ◆ Measurement and regulatory issues associated with recent innovations on financial institutions (banks),
- ◆ Assessment of the impact of recent financial market innovations on the relations between the intermediate monetary and final monetary targets,
- ◆ Comparison of the evolution of the Philippine's financial market with financial sectors in other emerging markets.

Discussions of these four issues comprise the main body of this report. Following them, the report concludes with a summary of its findings and suggestions of issues for further assessment or training to implement suggested improvements.

The first section begins with a reprise of recent financial market development and then assesses the current state of financial market instruments that have been recently introduced and the problems or impediments to further developments that exist in the current regulatory structure. The second section sets out the role of financial markets in general and places the role of the innovations in this framework, also addressed here are impediments that could be removed or institutional changes that could be implemented to improve the efficiency of the market and to further its development. This forms a natural segue to the third section's assessment of the regulatory structure in terms of its adequacy to measure the extent of risk represented by financial market innovations and the regulatory capacity to deal with troubled financial institutions. The fourth section addresses the relation between the growth of money and policy targets (inflation, stability and exchange rates) and the effects of recent financial market innovations. The penultimate section provides context for this assessment of Philippine financial development and outlook by providing summaries and comparisons with other emerging market financial evolution. The final section summarizes our findings and recommendations for changes and training. References, tables, charts and annexes—including a characterization of the current state of the banking sector and the outlook for financial market evolution (Annex V 1)—appear at the end of the report.

## **I Scope and Growth of Recent Financial Market Innovations in the Philippines**

Over the past two decades, the Philippine financial system has introduced numerous financial innovations as part of the effort to satisfy the rapidly growing and increasingly diverse demand for financial services of the various sectors of the economy. Some of these financial innovations evolved from the informal sector or initially operated outside the ambit of existing regulations, but eventually found their way to the formal, regulated system. Others were initiated by regulatory authorities to widen the array of financial products that financial institutions might offer to their clients. More recently, banks have introduced non-traditional fee-based financial products, which have become increasingly popular among consumers of financial services.

The broad-ranging financial sector reforms coupled with strong recovery of the economy in the 1990s had encouraged more entrants to the Philippine financial system. As of December 1997, there were 54 commercial banks including 14 branches and 4 subsidiaries of foreign banks, 117 thrift banks, and 832 rural and cooperative banks. More than six thousand branches of these banks are scattered all over the country. Offices of non-bank financial institutions numbered almost ten thousand.

To survive in an increasingly competitive environment, banks have introduced new financial instruments and payments services that could suit their clients' various needs. The emerging securities market in the Philippines, which offers investors alternative investment instruments and borrowers alternative sources of funds, has added more pressure on banks to be more innovative if they are to maintain, if not increase, the share of intermediated funds in the financial system. Thus, today there already exist a fairly wide menu of financial instruments and payments services in the country, albeit admittedly some of them are not yet as developed as those that can be found in more developed economies of the world.

This section describes the new financial instruments, institutions and payments system in the Philippines and discusses in a more general manner their possible implications on the conduct of monetary policy. The findings in this section provide a background to the empirical analysis on

the impacts of financial market innovations on monetary policy that will be presented in Section IV

## **A Financial Instruments**

### 1 Traditional Peso Deposits

The banking system offers traditional deposits, namely demand<sup>1</sup> savings and time deposits, and deposit substitutes, which are all subject to the same reserve requirement ratio and to a 20 percent withholding or final tax on interest income. Since each bank has been trying to make their deposit products distinct from those of other banks to make them attractive to depositors, the market today is proliferated with a myriad of deposit instruments that are variants of essentially the same deposit instruments. It is virtually impossible to describe all of them in this paper. Thus, only a few of the deposit products will be briefly described here just to give a flavor of the financial innovations that have occurred in the country in the last few years.

After the lifting of the prohibition to pay interest on demand deposits in April 1994, virtually all banks started to pay interest on such deposits subject to a certain minimum average daily balance. Since demand deposits are used frequently for transactions, banks normally pay lower interest rates on such deposits than on savings and time deposits. However, a few banks offer a special demand deposit product that pays interest almost equal to that on a time deposit if depositors make only one withdrawal (or write only one check) within a month and an interest almost the same as that on a savings account if depositors make two withdrawals within a month. This checking deposit product is meant for depositors who do not regularly use a check for payment but want to retain an option to use it for emergency purposes.

Much of the innovations in the deposit market have been concentrated in the savings accounts. Thus, today there are various forms of savings deposits offered by banks. One example is the installment savings account that allows depositors to save a fixed amount monthly, say P1,000, until he/she reaches the target amount to be used for a specific purpose, such as buying a car, a

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<sup>1</sup> Demand deposits account is also called *checking* or *current account*

computer, refrigerator, etc. The interest rate on this savings account, which varies according to the fixed amount being committed to save, is usually double that of an ordinary savings account. Another example is the special savings account for depositors' children, which yields higher interest than ordinary savings account. Still another example is a savings account that includes a life insurance for depositors.

Almost all demand deposit issuing banks now offer a "combo" or automatic transfers of funds account, which automatically transfers funds from savings account to checking account to maximize the yield on deposits. For individuals, the required average daily balance for a "combo" account can be as low as P5,000 for the checking account and P20,000 for the savings account to earn interest. The required daily balance for the corporate clients' "combo" account is usually double that for individuals.

Most checking and savings deposits automatically come with an ATM card, which gives bank clients access to their deposit accounts 24 hours a day for cash withdrawal, deposit or transfer of funds from one account to another account. At end-1997, depositors could access 2,844 ATM machines located in cities and large towns of the country. Available data suggest that as of 1996 there were 8.5 million ATM cardholders, which is about 12 percent of the total population in the Philippines (Silvoza and Zafra 1998).

Banks are offering several peso time deposit products. One such product gives depositors the option to withdraw interest earnings every month. Most recently, one bank guarantees to double a time deposit of at least P50,000 in 5 years.

Table I 1 shows the composition of deposits of deposit money banks from December 1980 to April 1998. Two important observations can be made. First, the share of demand deposits in the total outstanding deposits of money banks declined from 27 percent in 1980 to 13 percent in 1984. Thereafter, it has remained fairly stable. Second, the share of savings deposits has been increasing at the expense of time deposits. The rising share of savings deposits in total deposits is partly due to the several types of innovations introduced by banks to this account. As of April 1998, the share of savings deposits stood at 83 percent compared to only 5 percent for time

deposits. It is to be noted that outstanding time deposits even dropped after 1991, which was the onset of the stock market boom. Probably, some funds invested in time deposits have migrated to other high-yielding instruments such as equity and trust accounts<sup>2</sup>

## 2 Deposit substitutes

In the 1960s, deposits mobilized by banks substantially lagged behind the rapidly growing demand for funds of corporate borrowers. The banks' ability to mobilize more funds was constrained by their inability to offer attractive yields on the traditional deposit instruments. This was due to certain factors, most important of which were regulations imposed on the traditional deposit instruments, such as reserve requirement, ceilings on interest rate taxes, etc. Noting the growing demand for funds by the corporate sector, a few non-bank financial institutions started trading short-dated instruments of banks and well-established corporations<sup>3</sup>. Soon after, banks followed suit and started issuing unregulated short-term instruments, such as repurchase agreements, certificate of assignment, certificate of participation and dealer promissory notes, which later became collectively known as deposit substitutes<sup>4</sup>. Because of their high yields, the deposit substitutes had attracted substantial amount of funds, some of which came from the traditional deposits, thereby affecting the movements of monetary aggregates.

In the 1970s, the regulatory authorities tried to reduce the relative attractiveness of deposit substitutes vis-a-vis the traditional deposit instruments by increasing the interest rate ceilings on the latter and, at the same time, imposing a reserve requirement and an interest rate ceiling on the former. In addition, a very high minimum placement was required of investments in deposit substitutes, thereby making these instruments accessible only to large investors. The reserve requirement on deposits and peso-denominated deposit substitutes eventually converged to a uniform ratio towards the late 1970s (see **Annex I 1**). In the early 1980s, interest rate ceilings on all types of deposits and deposit substitutes were lifted, leaving to the market the determination of the interest rates on these instruments. The final tax imposed on the gross interest income from deposit and deposit substitutes was made uniform at 20 percent.

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<sup>2</sup> See below for a related discussion.

<sup>3</sup> Licuanan (1986)

<sup>4</sup> Deposit substitutes form part of the money market instruments which started to develop in the 1960s.

**Table I 2** shows the relative importance of deposit substitutes to total deposits of money banks. The share of deposit substitutes reached a peak of 40 percent in 1975 and monotonically declined thereafter, hitting a low of about 1- percent in the 1990s. The severe economic crisis that struck the economy in 1984-85 saw a turning point for the deposit substitutes. High net-worth individuals that had been investing in deposit substitutes shifted their funds to safer and more liquid investment instruments, such as T-bills and savings deposits. Since then, the outstanding deposit substitutes in deposit money banks never recovered their pre-crisis level as large investors found newly introduced financial instruments more attractive (see below for more details). It seems that the flight away from deposit substitutes is permanent.

The emergence of the deposit substitute instruments led the monetary authorities to define a much broader monetary aggregate, called M3 which up to the present time has been used as an intermediate target of monetary policy. However, because of the contraction of deposit substitutes over the years, the ratio of M3 to M2 has approached 1 beginning in the second half of the 1980s, suggesting that there is hardly any difference now between the two monetary aggregates.

### 3 Trust accounts

Another financial innovation that emerged in the domestic financial market is the trust account. Banks may secure authority from the BSP to operate a trust account. Trust accounts are treated as off-balance sheet activity of banks. Unlike deposits, yields on trust accounts are not guaranteed. They are also not covered by the deposit insurance of the Philippine Deposit Insurance Corporation (PDIC).

The trust business was started by independent trust agencies at the turn of the 20<sup>th</sup> century. It was limited to purely trust business operations, i.e., managing for a fee one's property entrusted to the trust agency for a specified period. Upon seeing the profitability of the trust business, commercial banks soon followed suit. In the 1960s, some commercial banks began to aggressively market their funds management services, targeting corporations that had corporate

retirement funds and schools and foundations that had idle funds. In the 1970s, banks widened their market by extending the same services to high net-worth individuals who had excess funds. Thus, banks were able to find a new way of tapping excess funds from institutions and individuals to satisfy the growing demand for funds of corporations.

In the 1980s, a substantial amount of funds especially those of high net-worth individuals and institutions was attracted to the trust accounts because their effective yields were much higher than those of traditional deposits. It is to be noted that the Central Bank (BSP) has been using the reserve requirement ratio on traditional deposits and deposit substitutes to manage liquidity of the system. In the 1980s when there was so much economic instability, the traditional deposits and deposit substitutes were subjected to a very high reserve requirement ratio of more than 20 percent (see **Annex I 1**), whereas trust accounts were subjected to only 1 percent liquidity reserve<sup>5</sup>. Moreover, the 5 percent gross receipts tax imposed on all interest, commission, and discounts from the regular lending activities of banks does not apply to income from trust loans and investments. More aggressive banks even gave an additional sweetener to investors to induce them to place their funds in trust accounts by informally guaranteeing to buy back the instruments if and when the obligations turn sour<sup>6</sup>.

Concerned about the impact of trust accounts on money supply, the Central Bank issued guidelines classifying accounts that do not qualify as strictly trust accounts as investment management accounts (IMA). A 10 percent liquidity reserve was imposed on IMA. This new regulation encouraged trust departments of banks to introduce a new financial product, called common trust fund (CTF).

The introduction of CTF heralded a new approach adopted by the trust departments of banks in mobilizing funds in that it targets small savings. Under the CTF, small savings are pooled together and invested in high-yielding short-term fixed-income instruments, equities, and loans<sup>7</sup>.

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<sup>5</sup> Beginning in August 1995, the BSP imposed a liquidity reserve on all types of deposits on top of the legal reserve requirement ratio. The liquidity reserves can be invested in high-yielding government securities, whereas legal reserves deposited at the BSP earn only 4 percent per annum.

<sup>6</sup> Sangalang and Umali (1996)

<sup>7</sup> A CTF functions like a mutual fund. The mutual fund industry has remained undeveloped due to lack of a regulatory framework and until recently double taxation on incomes.

Unlike regular bank deposits, the rate of return on CTF is not fixed, although some banks are known to make undocumented guarantee on the yield to make it look like deposits. Also, they are usually able to be withdrawn two to three days after notice of redemption. Thus, from the point of view of investors, CTF is regarded as another deposit substitute. Investors are, however, told that investments in CTF are not insured under the PDIC. Currently, the minimum lot size for an investment in a CTF greatly varies among banks, ranging from P10,000 to P100,000, with a maturity period of 30 to 90 days.

Between 1988 and 1992, the CTF in commercial banks' trust departments grew six-fold (see **Table I 3a**). Banks with trust departments became more competitive because they could offer attractive rates to their prime borrowers using cheap funds from their trust departments. While it appreciated the rapid growth of intermediated funds through the trust departments of banks, the Central Bank was also concerned about CTF being used by banks to circumvent existing regulations and its impact on the effectiveness of monetary policy instruments. Thus, in October 1993 the BSP imposed a 10 percent reserve requirement on CTF. The following year, the outstanding CTF of commercial banks dropped significantly from P90 billion to P70 billion, and stayed at this level until 1996 when it started to rise again. It is to be noted that the BSP started in May 1995 to impose a liquidity reserve on CTF on top of the regular reserve requirement. Starting from 3 percent, the liquidity reserve reached a peak of 9 percent in August 1997 (see **Annex I 2**). Clearly, BSP's policy is to make the total reserve ratio (i.e., legal or regular reserve requirement and liquidity reserve ratios) on CTF lower by 2 percentage points than that of traditional deposits and deposit substitutes. Presently, the total reserve ratio of CTF is 13 percent while that of traditional deposits and deposit substitutes is 15 percent.

The imposition of regular and liquidity reserves on CTFs has to a certain extent diminished their relative attractiveness as an investment instrument. More yield-sensitive investors would naturally start looking for alternative investment instruments. In response to this situation, banks have tried to entice their clients to maintain their investments with them by offering them more attractive investment instruments, notably the IMA since these are subjected to only 10 percent liquidity reserve. Thus, IMA accounts began to grow again significantly in the last few years (see **Table I 3a**). Some innovative banks have developed new trust account products, which the

BSP officially classify as trust and other fiduciary accounts – others or TOFA-others. Free from the legal reserve requirement, these new financial instruments experienced a rapid growth up until 1996 (see **Tables I 3a&b**). In 1997, the BSP started to impose a legal reserve requirement and a liquidity reserve on TOFA-others, which had been aligned to those of CTF. This could have been the cause for the sharp drop in the TOFA-others account from P56 billion in 1996 to P41 billion in 1997.

With the recent liberalization of the foreign exchange market, more innovative banks have developed foreign currency denominated CTF, which is subjected to a 10 percent liquidity reserve. Investment in this instrument, albeit still small, has been consistently rising over the years, reaching P20 billion in 1997. Investors in this instrument must have reaped a windfall when the peso depreciated by about 40 percent in the last one and half years. Given this experience and the present volatility of the exchange rate, foreign denominated CTF will likely gain more popularity among investors in the near term.

To recapitulate, the trust business of banks has substantially deviated from the purely trust business operations, transforming it into an instrument for financial intermediation. Although considered as an off-balance sheet activity, the trust business of banks is required to follow a standardized T-account clearly delineating the sources and uses of funds.

To appreciate the importance of the various trust accounts mentioned above in the financial market, **Tables I 3a&b** shows their total outstanding amount during the period 1988-1998. As of March 1998, it amounted to P203 billion or 52 percent of the total resources of the trust departments of commercial banks. As a ratio to M3, it reached a peak of 34 percent in 1992 and hovered about 20 percent in the last four years. A flight away from the traditional deposits to the various trust accounts mentioned above could weaken the relationship between the existing monetary aggregates and economic activity.

As **Table I 3b** shows, a large proportion of the total resources of commercial banks' trust departments went to loans and investment in shares of stocks and in private and government securities, all of which have impacts on economic activity. However, the weakening of the link

between the existing monetary aggregates and economic activity could have been tempered by the extent through which financial intermediation through these trust accounts is subsequently captured by traditional deposits. The effect of the trust accounts on the link between monetary aggregates and economic activity will be discussed further in Section IV of this study.

#### 4 Foreign currency deposits

The effort to develop the foreign currency deposit system was begun in the early 1970s as a means to shore up the country's international reserves. However, it made very little success. It was then thought that some liberalization was needed, possibly allowing branches of foreign banks to participate in the foreign currency deposit system.

The Philippines has at present a three-tiered foreign currency deposit system, namely (1) the offshore banking units (OBUs), (2) the expanded foreign currency deposit units (FCDUs), and (3) the limited foreign currency deposit units of domestic banks (those that do not qualify in the expanded system). Banks that have FCDUs are supposed to keep a separate book for FCDU-related transactions from their regular book.

The specific regulations covering both the FCDUs and OBUs are summarized in **Annex I 3**. Domestic banks (i.e., commercial and thrift banks) may be authorized by the BSP to operate a foreign currency deposit unit subject to certain requirements, the more significant of which were minimum capital requirement and competence of banks in the area of international banking. On the other hand, branches, subsidiaries and affiliates may secure authority from the BSP to operate an offshore banking unit in the country. FCDUs and OBUs perform different but complementary functions. OBUs may transact with FCDUs, other OBUs, non-bank residents and the BSP, whereas FCDUs may transact with OBUs, other FCDUs, foreign banks abroad, residents and non-residents and the BSP. OBUs are supposed to cater to the wholesale market only, whereas FCDUs can serve both the wholesale and retail market. Unlike FCDUs, OBUs do not have access to the domestic currency and thus cannot have swap arrangements denominated in domestic currency.

Both residents and non-residents may qualify as depositors of FCDUs. The types of financial instruments the FCDUs may offer to savers include demand deposits, savings deposits, time deposits and trust accounts. Before the liberalization of the foreign exchange market in 1991, residents had limited opportunities to avail themselves of the deposit services offered by FCDUs due to certain regulations. More specifically, qualified commodity exporters were allowed to retain only 2 percent of their export proceeds with a US\$100,000 cumulative deposit limit. Also, Filipino nationals working overseas were required to remit specified minimum shares of their earnings. These controls were relaxed in 1991 and eventually fully lifted in 1992. Thus, foreign exchange earners have now full control over the disposition of their foreign exchange earnings. Understandably, many of them have kept their foreign exchange earnings in foreign currency deposits. Since the liberalization of the foreign exchange market, not only commodity exporters and overseas Filipino workers (OFWs) have opened accounts with FCDUs but also non-foreign exchange earners who want to have a more diversified investment portfolio.

FCDUs of commercial and thrift banks also offer foreign currency denominated checking, savings and time deposit accounts.<sup>8</sup> Like peso-denominated checking accounts, dollar-denominated checking accounts earn interest. Some banks allow depositors to have an initial deposit for as low as US\$100 for savings account and US\$1,000 for time deposits. Certain dollar-denominated savings accounts have features similar to those of peso-denominated savings accounts, such as installment savings account, which can be as low as US\$50 per month. All types of foreign currency deposits are free of any reserve requirement. Starting in 1998, a 7.5 percent final tax is imposed on interest income from foreign currency deposits.

**Table I 4** shows the total resources of the FCDU system. From US\$2.7 billion in 1986, FCDUs' total resources increased to US\$14.5 billion in 1997. Deposits accounted for the bulk of the total FCDU resources. Interestingly, deposits of residents ranged from 75 percent to 90 percent of the total deposits of FCDUs. During the period 1986-1997, FCDU deposits of residents grew by an average of 28 percent annually, whereas traditional deposits of deposit money banks increased by an average of 21 percent annually.

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<sup>8</sup> These are mostly denominated in US dollars.

There is no information as to the shares of the various types of FCDU deposits. Per our interview with some bankers, they said that some of the deposits are transaction deposits of exporters who use them for financing imports of raw materials and the peso cost of their operations. However, they pointed out that a big chunk of the FCDU deposits seems to be kept by depositors as long-term savings.

As second to the last column of **Table I 4** shows, the ratio of FCDU deposits of residents to M3 has rapidly been rising from 12 percent in 1986 to 32 percent in 1997. Even if the effect of the change in the exchange rate is removed by arbitrarily fixing the exchange rate at the 1986 level (i.e., P20.39/US\$1), still the ratio of FCDU deposits of residents to M3 is observed to be significantly rising over the same period. It reached a peak of 29 percent in 1996 and dropped substantially in 1997 as depositors converted some of their dollar deposits into pesos due to a very favorable exchange rate.

With the rapid growth of the FCDU deposits, there may be significant dollarization occurring in the domestic economy, which has the potential of weakening the effectiveness of monetary policy that is based on targeting a monetary aggregate composed only of peso-denominated deposits. Thus, most recently, the BSP has constructed a new monetary aggregate, M4, which is composed of M3 and the FCDU deposits of residents. The impact of increased dollarization in the domestic economy on the link between the monetary aggregates and economic activity will be addressed in Section IV of this study.

#### 5 Debt instruments

Debt instruments currently available in the domestic market are those issued by the government and some private corporations.

Government securities include those issued by the national government and government-owned corporations. The discussion below focuses only on the national government's securities because they constitute the largest proportion of the total government securities issued and are closely watched by the market.

The National Government through the Bureau of the Treasury auctions 91-, 182- and 364-day Treasury bills on a weekly basis<sup>9</sup> During periods of interest rate volatility, the government issues 35-, 42- and 63-day cash management bills Both the cash management and Treasury bills are discounted instruments The National Government used to issue floating rate notes, but these were replaced by 2- 5-, 7-, 10- and 20-year fixed rate notes in the last four years The fixed rate notes are auctioned using the Dutch auction method The first auction for the 20-year notes was held in April 1997 and the second in August 1998 A 20 percent withholding tax is imposed on interest income from government securities

**Tables I 5a** and **I 5b** show the distribution of the total issuances (volume) and outstanding national government securities by type and tenor of the security The last three years saw outstanding government securities rising, mainly due to the issuance of medium-term fixed rate notes As of December 1997, outstanding government securities amounted to P367 billion, which is equivalent to 40 percent of the total deposits of money banks

Institutional investors, such as trust funds of banks, insurance companies social security systems, etc , and retail investors purchase government securities from accredited dealers Those who have access to the government securities market are the relatively large, interest-sensitive investors Small investors can access them indirectly through their common trust funds (CTF) or participation certificates, which is a deposit substitute, offered by banks and quasi-banks

Aside from loans, equity and retained earnings, corporations can raise funds by selling their commercial paper to the public through dealers Because all commercial paper has to be rated by the Credit Information Bureau Inc to gain approval from the Securities and Exchange Commission to be sold, commercial paper sold in the domestic market tend to be those of blue chip corporations, such as Ayala Land Inc , Coca-Cola Bottlers Phils Inc and San Miguel Foods, Inc which represent relatively few companies

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<sup>9</sup> See Section II of this report for a related discussion

Commercial paper can be short-term (i.e., with maturities of one year or less) or long-term (i.e., with maturities of more than one year). Interest rates on these instruments are usually floating and repriced every 30 or 90 days, using the Treasury bill rates as benchmark rates. However, other rates can be used if the Treasury bill rates are deemed not reflective of the market condition. Interest on commercial paper is subject to a 20 percent withholding tax.

As shown in **Table I 6a**, the volume of commercial paper sold annually is quite thin, ranging from P13 billion to P31 billion. Issues of long-term commercial paper had been rising recently, but this was arrested in 1997 when the Asian currency crisis struck the region, causing so much interest rate volatility and economic uncertainty.

The composition of outstanding commercial paper shows a different pattern, with the share of long-term commercial paper consistently rising during the period 1990-1997 (see **Table I 6b**). However, it is expected to decline in the coming months due to the interest rate volatility which may last as long as the Asian currency crisis remains.

As of 1997, the value of outstanding commercial paper stood at P55 billion, which is equivalent to only 6 percent of the total deposits of deposit money banks. Only large investors normally have access to the commercial paper market.

Other debt instruments, such as corporate bonds, warrants, etc., are non-existent or still negligible in the country today.

## 6 Equity

The equity market offers investors an alternative investment instrument. Recently, access to the equity market by a much broader set of investors, including small investors, has been considerably improved due to the government's privatization program favoring small investors, the unification and modernization of the Philippine stock exchange, and increased transparency in transactions.

at the stock exchange<sup>10</sup> Some established corporations wanting to expand further their operations had found the stock market a cheaper source of funds than bank loans In the 1990s alone, 108 firms listed their stocks in the local stock exchange, which accounts half of the total number of listed companies to date

Since 1994, capital raised by corporations from domestic and foreign investors was more than P100 billion annually (see **Table I 7a**) The average daily turnover before the onset of the Asian currency crisis was fairly high, suggesting some degree of liquidity in the equity market

The equity market turned out to be a very risky investment instrument especially to the less sophisticated investors As can be seen from **Table I 7b**, the 30-share Philippine composite index had been fluctuating widely in the last two and half years As of 27 August 1998, the composite index closed at 1,266.99, its lowest level since December 28, 1992 when it hit 1,252.42

## 7 Derivatives

The derivatives market in the Philippines is still underdeveloped There are no futures and options contracts nor a convertible bond listed in the Philippine Stock Exchange However, there are three warrants currently listed in the Philippine Stock Exchange These warrants were issued by corporations as additional sweeteners to their initial public offerings

An attempt was made in the early 1980s to develop commodity futures with the establishment of the Manila International Financial Futures Exchange (MIFFE) However, trading volume had been very thin Due to numerous violations of the Revised Securities Act committed by MIFFE and complaints made by many investors left unattended by the exchange, the Securities and Exchange Commission (SEC) issued a cease and desist order to the exchange in 1996, which effectively halted the operation of the exchange Congress is currently drafting a new securities act that will set a better regulatory framework for the trading of futures and options contracts

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<sup>10</sup> The Revised Security Act is in the process of being amended to address remaining issues related to insider trading, establishment of self-regulatory bodies, among others

The recent liberalization of the Philippine financial sector has provided some spark to the growth of other derivatives instruments, such as interest rate swaps and foreign currency forwards and swaps. Since the issues related to derivatives instruments and their implications on the conduct of monetary policy deserve more discussion, two other sections of this report will be devoted to discussions of this topic—Section II on the instruments, and Section IV on whether there has been any empirical impact.

## **B Institutional innovations**

### 1 Foreign Exchange (Forex) Corporations

As part of the program to liberalize the foreign exchange market, the Central Bank lifted the prohibition on off-floor trading of foreign exchange in 1991. In response, the Bankers Association of the Philippines created in 1992 the Philippine Dealing System (PDS), which links participants through an electronic screen-based network for sharing information and undertaking transactions. All participants are required to submit two-way quotes. Banks are the participants of the PDS, where they buy and sell foreign exchange on their own account or for the account of their customers.

The foreign exchange liberalization effected by the BSP in the 1990s did not actually remove all the controls on foreign exchange transactions of banks. For example, while ceilings on how much foreign exchange a bank may sell to its clients for a particular purpose, e.g., imports, education, investment abroad, etc., without prior approval from the BSP have been relaxed, sales must nevertheless be supported by proper documents evidencing legitimate demand for the foreign exchange.<sup>11</sup> Also, banks are subjected to limits on their foreign exchange position.<sup>12</sup>

On the other hand, foreign exchange transactions outside the banking system have been completely deregulated. Thus, a corporation can freely buy and sell foreign exchange, which is no longer considered illegal so long as the corporation is properly registered with the Securities

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<sup>11</sup> Presently, sale of dollars in excess of US\$10,000 requires supporting documents.

<sup>12</sup> The maximum amount a bank can be over-bought in foreign currency against pesos is equal to five percent of its capital or US\$10 million.

and Exchange Commission (SEC) With the removal of the retention limit on the foreign exchange earnings of exporters and overseas Filipino workers (OFWs), banks were concerned about losing a big chunk of their foreign exchange business to the non-bank institutions Although foreign exchange transactions in the non-bank sector are basically retail, nevertheless, the volume of transactions is by no means insignificant, especially in the last few years when exports, remittances of OFWs and portfolio investment inflows surged dramatically Forex corporations are not participants of the PDS

Banks responded to this challenge by creating their own forex corporations, which need not require BSP approval Because they fall outside the supervisory and regulatory controls of the BSP, the forex corporations of banks were not subjected to the same controls on foreign exchange transactions applied to the banks Thus, banks are now engaged in both the wholesale and retail segments of the foreign exchange market

Although they did not furnish the research team with data on forex transactions made by their forex corporations bankers interviewed for this study pointed out that forex corporations offer very competitive rates for their purchases and sales of foreign exchange or other services because of their low transactions costs An additional advantage to banks of having a subsidiary forex corporation was that the position of their forex corporations was not included in their allowable ceiling on foreign exchange position Also, banks can engage in derivative transactions with their forex corporations (see below in Section II)

Because of low transactions costs, forex corporations offer very competitive rates for their purchases and sale of foreign exchange or other services For banks, an additional advantage was that the position of their forex corporations was not included in their allowable ceiling on foreign exchange position Also, banks can engage in derivative transactions with their forex corporations (see below in Section II)

The proliferation of forex corporations has recently caught the attention of the BSP, especially since banks now have one leg outside the purview of existing regulations It is widely believed that banks used their forex corporations to circumvent certain regulations, such as limit on sale of

dollars to clients without proper documentation. Also, forex corporations engaged in synthetic swaps with high net-worth individuals or corporations to increase the yield on peso futures. Thus, in September 1997, the BSP issued a circular letter to all banks informing banks that forex subsidiaries/affiliates of banks would be considered as part of the banking system and therefore they would be subject to all foreign exchange rules and regulations applicable to banks.

There is no information yet on the volume of transactions done by the forex corporations of banks, but it is widely believed to be large.

## 2 Thrift banks of commercial banks

The thrift banking system consists of savings and mortgage banks, private development banks and loan associations organized under existing laws of the Philippines. Unlike commercial banks, thrift banks have limited banking activities. They are mainly peso deposit-taking banks, except for a few which were given FCDU license by the BSP. They cater mainly to small savers and small- and medium-sized borrowers.

Thrift banks used to be independent banks, i.e., not owned or operated by other banks, until the liberalization of the banking system in the early 1980s which allowed commercial banks to invest up to 100 percent of the equity of thrift banks. Since then, a few commercial banks have set up their own thrift banks, while others acquired existing ones to have their presence felt both in the wholesale and retail markets.

The thrift banking law, which was enacted in February 1995, has conferred some privileges to the thrift banks. One is the reserve requirement differential, favoring thrift banks over commercial banks.<sup>13</sup> The other is exemption from payment of all taxes, except corporate income taxes, fees and local taxes for a period of 5 years starting from the date the act was effected. These privileges could make thrift banks more competitive than commercial banks especially in mobilizing deposits. In response to this competitive environment, some commercial banks immediately established or acquired thrift banks, while others which already

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<sup>13</sup> The BSP sets a 2 percentage point reserve requirement differential.

have thrift banks invested more resources in their thrift banks to gear them up to a more competitive environment. Most of the subsidiary thrift banks of commercial banks offer almost the same services as their parent banks. On the other hand, depositors have a high degree of confidence in the safety and soundness of subsidiary thrift banks especially if they carry the same name as their parent banks. This new development has some implications on the movements of monetary aggregates because commercial banks could book some of their deposit and loan accounts to their thrift banks to avoid the high reserve requirements and taxes. Since the existing monetary aggregates, M1, M2 and M3, do not include deposits of thrift banks, the migration of deposits from commercial banks to thrift banks could weaken the relationship between the intermediate targets and the ultimate targets of monetary policy.

As of December 1997, there were 117 thrift banks, which had 1,272 branches located in major cities and towns of the country. **Table I 8** shows that the total deposits of the thrift banking system has been steadily rising since 1985, reaching P129 billion in 1997 despite conversion of some thrift banks to commercial banks and rural banks. It should be noted that when the new thrift banking act took effect in 1995, deposits of the thrift banking system jumped by 40 percent over the previous year. The deposits in the last three years were equivalent to 12-13 percent of M3, which was about 2 percentage points higher than the period before the new act took effect.

Interestingly, deposit substitutes of deposit money banks pale in comparison with the deposits of the thrift banking system. In 1997, for instance, deposit substitutes amounted to P12 billion, which were only about 10 percent of the total deposits of the thrift banking system. Thus, deposits of the thrift banking system are not a negligible amount, which could affect the movements of the monetary aggregates and on the relationship between monetary aggregates and economic activity.

### **C Payments Systems in the Philippines**

A payments system is a method of transferring value between buyers and sellers. The efficiency of the payments system is, therefore, important for the economy. Through the years the payments system has considerably changed as forms of payment have evolved from precious

metals to currency and checks and recently to electronic payments. The evolution of the payments system has been facilitated by changes in laws and advances in technology.

This study will not assess the extent of the efficiency of the Philippine payments system but will rather focus on the implications of the existing payments system on monetary aggregates and the conduct of monetary policy.

**Table I 9** enumerates and gives a summary of the important features of existing payments systems in the Philippines.

Regardless of the type of money being used to effect payment, the payments system's functions of clearing and settlement must occur. When cash or currency is used in a transaction, clearing and settlement simultaneously takes place and the cash being transferred from the buyer to the seller can be immediately used for another transaction. This is not the case if a check is used for payment. While the goods or services may have been already transferred from the seller to the buyer, the transfer of value from the buyer to the seller will occur only after clearing and settlement of the check, which may take more than a day. If the funds in the buyer's account in the bank are insufficient, the check must be returned. Thus, the use of a check to effect payment is more risky than cash.

Cash and checks (either personal or manager's) are the two most common methods of payment in the Philippines today. Checks are cleared through an electronic system run by the Philippine Clearing House Corporation (PCHC), which is owned by a consortium of banks operating in the country. Settlement among banks is done through the BSP using the reserves of banks.

There seems to be an increasing efficiency in the use of checks for payment. As **Table I 10** shows, the turnover rate of demand deposits of commercial banks, i.e., total debits divided by the average peso demand deposits, has tended to rise in the last few years.

Although electronic payments in the country are still at their nascent stage, nevertheless they have been rapidly gaining popularity especially in the last five years when more banks entered

the domestic financial market. Today, several large banks issue internationally accepted credit cards, such as Visa and MasterCard. Because of stiff competition, credit card issuers have relaxed some of their requirements, such as minimum annual income of card applicants, guarantor, etc. Many have also added enhancements to their credit cards, such as link-up to card holders' savings and checking accounts, free medical check-up, easy repayment scheme, etc., to attract more depositors.

As of December 1997, there were about 2 million credit card holders, which constitutes 2.8 percent of the total population, and more than 120 thousand merchants accepting credit cards for payment of goods and services (CCAP-Industry Survey Report, undated). Gross billings for the year 1997 amounted to P118.4 billion. BSP's survey results show that the exposure of commercial banks to credit cards (i.e., receivables) grew rapidly both in absolute terms - from P2.4 billion at end-1994 to P38.4 billion at end-1997 - and as a ratio to their total loan portfolio - from 0.37 to 4.8 percent for the same period (see **Table I 11**).

The use of a credit card is a way of deferring payment. When one pays by credit card, she is getting credit from the credit card issuer, that is, incurring a debt that she will have to settle later on by handing over a check or currency or by using the bills payment system described below. Thus, the credit card issuer bears the credit risk, not the seller of goods.

An ATM card used to be an instrument to facilitate cash withdrawal and deposit at any time in a place where there is an ATM unit without the user having to go to a bank that opens only for 6 to 8 hours a day for five days a week. However, recent enhancements added by the three ATM networks, i.e., BancNet, Megalink and Expressnet, to the ATM business have changed the ordinary ATM card into a debit card. The three ATM networks have developed their own point-of-sale (POS) system, making it possible for cardholders to pay their purchases using their ATM cards in several establishments in the country. For example, BancNet alone has over two million POS terminals in Metro Manila and Luzon to serve more than 3 million of their customers.

Aside from the POS system, the ATM networks have also developed a bills payment system (BPS), which allows ATM cardholders to pay their bills - such as credit card bills, telephone bills,

electric bills, insurance bills, etc , through the ATMs Bancnet ATMs receive an average of 50,000 bills payment per month, and the other two ATM networks are not far behind Although there are already quite a number of clients using the BPS, still the number of users fall below banks' expectations Apparently, bank clients still feel secure if they can immediately obtain the official receipts upon payment of their bills

The latest technology in the payments business is the smart card Unlike the existing credit cards and ATM cards that use the magnetic stripe technology, smart cards are chip-based payment cards The chip in a smart card can contain various information, which makes it possible for the card to be used for various purposes such as a debit card, a credit card or for storing valuable information about the card holder Some local banks are in the process of introducing the smart card as an electronic money A smart card holder may request her bank to transfer some amount of money from her savings or current account to her smart card which she can use to purchase goods and services from a store or service provider which has a smart card reader machine <sup>14</sup> Unlike an ATM card, which is only an instrument to make electronic funds transfer the smart card is pre-loaded with purchasing power <sup>15</sup> Losing it is just like losing cash unless it is retrieved Because of this and the opportunity cost of storing money in a card it is likely that smart card holders will use the smart card in lieu of cash for their daily transactions such as paying for lunch, use of public telephones, photocopier use, etc As an electronic money, however, smart card is definitely safer and several times more convenient to use than cash

Due to the on-going financial crisis, banks are planning to defer the actual introduction of the smart card because it requires additional outlays on the part of both the banks and their customers However the banks are expecting wider acceptance of the smart card in the near future especially since many have already been introduced to the electronic payments system using the ATM cards Many have conceded that the smart card will become the technology of the future in the payments business

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<sup>14</sup> Alternatively, the smart card holder may purchase her own machine which can be linked to her account with her bank so that she can do the funds transfer without going to the bank

<sup>15</sup> This is almost similar to the phone cards that are increasingly becoming popular in schools nowadays However these are highly dedicated cards unlike the smart card which can be used for different transactions

Another payment system is the automatic payroll deposit (APD). It is a method for speeding payment of salaries and wages from businesses and governments to their employees by placing the amounts due employees each pay period on a computer diskette and delivering the diskette to a depository institution, where a computer transfers payroll amounts to each employee's deposit account. APD, therefore, is a debit payments system that bypasses the use of cash or check payment. There has been an increase in the use of automatic payroll deposit (APD) facility by businesses and government entities. APD normally uses savings deposit accounts of employers and employees, and in most cases banks automatically give employees ATM cards. With the convenience afforded by ATMs, depositors prefer to park their money in their savings account and withdraw only the amount needed for their transactions. The rapid use of the APD partly explains the significant rise of the share of savings deposits especially in the 1990s.

There is no universal payments system, like SWIFT, in the Philippines. However, there are highly specialized payments systems, such as the Multi-transaction Interbank Payment System which is a simple electronic payments system that is used solely for interbank peso fund movement, and the Electronic Fund Transfer Instructions System, which is an electronic payments system for making peso transfers between banks and government agencies more effective.

#### **D Financial Instruments, Payments Systems and the Money Supply**

The emergence of new financial instruments and introduction of new payments systems have some implications on the money supply and the conduct of monetary policy. The underlying relationship between money supply and financial market innovations can be analyzed through the money supply process, which is stated as

$$M = mB$$

where  $M$  = money supply which is defined as  $M3$ ,  
 $m$  = money multiplier, which is a function of  
currency-to-deposit ratio and the reserve requirement ratio, and

**B** = base money

For a given base money and reserve requirement ratio, financial innovations can affect money supply through its effect on the money multiplier. Note that since the reserve ratio against peso-deposits is uniform, there is no incentive for banks to offer arrangements to induce depositors to shift funds from one class of peso-deposit to another. However, other depositor incentives, such as the tax treatment of interest, may induce depositors to shift funds. Thus, this suggests that it is important to determine which of the components of money supply will be affected by certain financial innovations.

**Table I 12** briefly describes the likely impact of financial innovations on the components of the M3. The financial innovations are distinguished whether they are new financial instruments or new payments systems. Note that credit card balances are not included because credit is merely a way of deferring payment.

### 1. Financial instruments

The newly introduced financial instruments could encourage people to place their savings in the form of financial instruments. A rise in deposits would lead to a reduction in the currency-to-deposit ratio, which would raise the money multiplier  $m$  which, in turn would increase money supply.

There are financial innovations that could induce a shift of funds from cash to deposits. For instance, the introduction of interest-bearing checking accounts could lead to a portfolio shift from cash to checking account, which would raise the money multiplier,  $m$ . The introduction of various forms of savings deposits that could encourage the public to minimize their holding of cash could produce the same effect on  $m$ .

There are financial innovations that could encourage shifts from one deposit instrument to another. In such cases, the money multiplier of a broader aggregate would be unaffected. For example, a portfolio shift from savings or time deposits to interest-bearing checking accounts

would leave  $m$  unchanged. The increased use of the “combo” account would also leave  $m$  unchanged.

There are financial innovations that can induce funds to migrate from deposit instruments to the newly developed financial instruments. To the extent trust accounts, securities and equity substitute for time deposits and deposit substitutes, then an increase in the volume of these financial instruments, partly due to movements of funds from time deposits and deposit substitutes, would lead to a decline in  $m$ . The substitution of foreign currency deposits for peso deposits could also cause a decline in  $m$ .

## 2 Payments system

The efficiency of the payments system can also affect the money multiplier. As described above, all the newly developed payments systems are aimed at bypassing the use of cash or checks in transactions.

Debit cards, such as the POS-ATM and BPS-ATM, can substitute for both cash and checks. The money multiplier,  $m$ , would decline if they substitute for cash. However,  $m$  would remain unchanged if they substitute for checks because the transfer from one type of deposit account to another would leave total deposits unchanged. The same can be said of APD.

The ease and low transactions costs involved in obtaining cash through the ATMs from the current and/or savings accounts of depositors could lead to a decline in idle cash balances held by the public, which could lead to a rise in  $m$ .

The use of a smart card presents another situation. The smart card as described above is obviously a substitute for cash. As the use of the smart card becomes more widespread, the public's holding of cash would decline over time, causing a decrease in the currency-to-deposit ratio, which would lead to a rise in the money multiplier.

In general, a new payments technology that will bypass the use of checks or erase the distinction between checking and savings deposits will have no impact on the money multiplier of a broader monetary aggregate. On the other hand, a new payments technology that will render the use of cash for payment unnecessary will affect the money multiplier.

Given the various financial innovations described above, it may be worthwhile at this point to make a qualitative assessment of their impacts on money supply.<sup>16</sup> **Table I 13** shows the composition of M3 and the base money during the period 1980-1998 (April). The share of checking deposits in M3 has been relatively stable since 1982, suggesting that the financial innovations, such as the 'combo' account and introduction of electronic payments systems, do not have yet a significant negative impact on this account. It is possible, however, that without the innovations, the share of checking account could have risen over the years.

The share of currency in circulation in M3 has been declining since 1987. Although one can attribute it to the recent financial innovations, however, it must be noted that the share of currency in circulation in M3 already started to decline in the early 1980s. This decline was arrested by the crisis that struck the economy in the mid-1980s. The shares of time deposits and deposit substitutes in M3 have also declined substantially over the years. This could be attributed in part to the introduction of high-yielding instruments, such as trust accounts, securities, and equities. In contrast, the share of savings deposits in M3 has been rising over the years, which could be a result of the introduction of new types of savings deposits, especially those that tend to blur the distinction between savings and checking deposits and the electronic payments systems.

The movement of the currency-to-deposit ratio has been erratic during the period 1980-1998. Since 1990, however, it has been consistently declining. As expected, the money multiplier and the currency-to-deposit ratio are strongly and negatively correlated.<sup>17</sup>

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<sup>16</sup> A quantitative analysis on this issue is presented in Section IV of this report.

<sup>17</sup> The correlation coefficient is -0.91.

## II The Role of Financial Markets and the Effects of Recent Innovations

Financial markets are important to economic development and growth, facilitating the movement of capital from those who have money to invest to businesses that have investment opportunities. In some emerging markets, banks as intermediaries are the only providers of capital. As an economy develops, however, stock and bond markets begin to offer alternatives.

In the evolution of financial markets government securities markets need to develop before other types of fixed income securities can be successful. Partly, government securities provide benchmark yields that are useful in pricing private issues, partly, an efficient government securities market offers a way to hedge corporate bond issues and the like.

The development of a well-functioning government securities market brings large benefits.

- ◆ Liquid markets mean lower interest rates (since investors accept lower yields when markets are liquid) and make it cheaper to finance government debt. This makes the most difference for long-dated issues—i.e. long-term interest rates will decline the most and the yield curve will flatten.
- ◆ It makes it easier to conduct monetary policy. The central bank can then use repos and reverse repos to change the liquidity of the banking system instead of relying on cruder mechanisms such as the discount window or reserve requirement changes.
- ◆ It makes it possible to price private sector issues with more certainty. Thus interest rates on corporate issues will also decline.
- ◆ It allows hedging of risk, through shorting of governments to protect against rates rising.

What makes a market function well? Generally, a well-functioning market has transparency and liquidity as well as a number of other characteristics that lower the risk to participants. Thus from an organizational perspective (whether regulatory or private) there are three component queries.

- ◆ Are issues pre-announced well in advance so that market participants can plan or are they a surprise?

- ◆ Are the auctions as originally advertised or is the size reduced when the bids are weak?
- ◆ Are the amounts of sufficient size to create liquidity?

In order to meet these implied requirements, Ministry of Finance professionals discuss market expectations regarding an offering with dealer representatives before an auction. Such discussions include the ability of the market to absorb new government securities in total and in various maturities with a minimum of interest rate volatility or interest rate cost to the government. Taking this market information into consideration, the Ministry of Finance would announce an auction, usually at a regular time, and announce in advance the volume of securities it would like to sell in various maturities. It accepts all noncompetitive tenders at the average interest rate for the auction. Generally non-competitive bids from non-dealers are a very secondary part of the offering and average a fairly consistent volume.

The objective of most Ministry of Finance sales is to raise the money needed to refinance existing (rolling over) and fund budget needs with a minimum cost to the government and with a minimum disruption to the market. With this in mind, consideration is given to accelerating or decelerating future financing needs at a measured pace. Nonetheless, even when government financing needs are known to the market, auctions can move rates, if government needs are more than a relatively stable market can absorb that day.

As implied in this scenario, dealers also play an important role in providing liquidity. If they can finance a security held in inventory cheaply via doing a repurchase agreement, they will make a better market (quote a narrower bid-offer spread) to their customers. Sometimes, they will want to reduce their risk—if the day's business has resulted in too large an inventory or if they anticipate supply. If they can sell some liquid issue short, then they can provide better markets to retail customers.

### **Assessment of the government securities market in the Philippines**

In recent years the Philippines has expanded the maturity range of the government securities it issues. Outstanding issues now range from short-term bills to 20-year bonds, a full spectrum.

This is one step in building a well-functioning securities market. Other steps that are needed include

### **1) Auctions**

As discussed above, amounts should be pre-announced and not altered at the last minute if bids yields are too high. Altering auction size affects the government securities markets adversely. The uncertainty about how the auction will proceed will lead to wider bid-offer spreads, this in turn will cause investors to demand higher interest rates. Beyond the Government securities markets, intervention in the auctions can also have adverse effects on floating commercial paper rates that are based on these auction rates.

### **2) Repo market**

It is important to encourage the use of government securities as collateral for loans among institutions in the private sector, in the form of repurchase agreements or “repos.” This is a form of borrowing that has less risk than most (since it is collateralized with government paper) and it also will add substantial liquidity to the government securities market. Current impediments to the use of repos include reserve requirements and the stamp tax.

### **3) Short sales**

To have a liquid market, dealers need to be able to sell in advance of perceived supply, they need to be able to sell if their customers have sold them a lot that day and buyers are in the future. Currently market participants can sell only what they own and cannot use a substitute. Securities lending and borrowing are not allowed under the Revised Securities Act as the law provides that brokers or investors can only trade securities that are in their actual possession.<sup>18</sup>

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<sup>18</sup> There is a proposal to remove this provision under the proposed Securities and Enforcement Act, which is being discussed in the Philippine Congress. The Philippine Stock Exchange wants to introduce securities borrowing and lending to enhance liquidity in the equities market. It has in fact entered into an agreement with the SEC, BSP and BIR to allow this under a certain arrangement but still within the framework of the existing law. It has already submitted to SEC for discussion its proposed rules.

Repo markets provide an easy way to finance government securities as well as to “borrow” securities to sell short. The institution lending against government collateral is entitled to sell that collateral, it must replace it, however, when the repo terminates.

In addition, the regulatory authorities should reconsider the value of a future market, particularly a contract on a T-bond. While there were previous problems with retail investors getting involved in futures, it is possible to design a contract of sufficient size to keep the typical retail buyer out but nevertheless accommodate the banks and broker/dealers. The ability to short government securities is helpful in gaining liquidity, a futures contract on a T-bond is also extremely helpful.

#### **Additional comments on financial markets in general**

We discussed above the role of Government securities markets in the evolution of a financial system. Another important ingredient—seldom appreciated—is the role of the speculator. Speculators are often regarded with disapproval. At times, regulators and some market participants may think that speculators are pushing markets in the wrong direction and /or making them more volatile. At some times, this is undeniably true. Over the longer run, however, speculators perform important functions.

- When business wants to protect itself by selling or hedging, and no other business want the opposite side at the moment, speculators take the opposite side.
- When speculators observe that prices have departed too much from the expected equilibrium price, they enter the market to push them to a more appropriate level, e.g. if investors have temporarily fled one market, speculators may come in to buy.

In these roles, speculators add liquidity to a market, reducing the bid-offer spread and moderating price volatility over the long run.

Short sales may be a tool used by speculators when they believe prices in a particular market will be heading down. However, the ability to sell short will enhance the liquidity of the markets—

which means lower interest rates, on average, and less dramatic movements both down and up, on average

Speculators may dampen price movements or they may aggravate them. But in the long run speculators who bet wrong lose their money, and efficient capital markets improve economic growth and per capita incomes

What role speculators played in the Asian crisis of 1997-98 remains to be analyzed in detail. In some cases, exchange rates were clearly out of line. One way or another, depreciation was needed. Perhaps it happened more abruptly because of speculators, perhaps the depreciation was excessive. Another question is whether those who imposed capital controls and restrictions of various sorts weathered the storm better. Or perhaps they more quickly changed policy and the markets perception of their economic future? Finally, there is an issue of whether countries with more extensive financial derivatives markets experienced worse volatility than those with little derivatives activities. These questions need to be analyzed with a multivariate analysis of the data, a large and important study, in and of itself

### **Financial derivatives in the Philippines**

In late 1995 the BSP issued circular 102 which spelled out the conditions necessary for banks to obtain licenses for derivatives activities. These conditions include minimum capital, hardware, and software, risk management and the like. Both local and foreign banks applied for these licenses and by mid-1998, 11 banks had authorization to conduct expanded derivatives activities and one had a regular derivatives license (See **Table II 1**). Many other banks have also submitted applications for such licenses

The BSP collects monthly data on derivative activities of banks and their FCDU affiliates. This includes information on the type of derivative, the purpose (trading, hedging, etc.) the mark to market value and the gain or loss. The data from May and June 1998 are shown in **Table II 2**

Total derivatives outstanding in June totaled about \$10 billion, with virtually all attributable to currency forwards and swaps. These volumes are in “notional principal”, in US dollars<sup>19</sup>

The main types of derivatives that are reported by regular units of banks are foreign exchange forwards and currency swaps. These together are about \$8 billion, with the forward contracts accounting for about five-eighths of the total. There are no currency options reported by banks.

It seems that the currency forwards reported on their forms are only peso/dollar contracts. Information from another report, Table II 3, shows that about 90 percent of the forward contracts are one foreign currency against another. Specifically, the May 1998 report shows that forward contract sales amounted to about \$30 billion of which about \$2.9 billion was peso/dollar, \$0.5 billion was dollar vs another currency, and \$26 billion was foreign currency vs foreign currency<sup>20</sup>

FCDUs report slightly under \$2 billion of foreign currency derivatives of which virtually all are forwards. Anecdotal evidence suggests that about one-third of these forwards are connected with dollar deposits. Philippine residents buy dollars, invest in time deposits and enter into forward contracts to sell dollars and repurchase pesos. That combination locks in a guaranteed peso earning but avoids the higher tax burden and reserve requirements on domestic time deposits.

A tiny amount of currency options are reported by FCDUs--\$27 million (there may be an error here, since the option reported by residents is exactly identical to the option amount with non-residents)

Interest rate derivatives are not very active. Interest rate derivatives at the regular units of banks in June consisted only of swaps and were a very small \$7 million. Nor were they large either in dollar volume or number of deals in prior months. In January 1997, there were 5 swap deals on the books of regular banking units. One large swap for 8,250,000,000 pesos was added in April 1997, and then eliminated 2 months later. In October 1997, a small deal for 34,000,000 pesos

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<sup>19</sup> In interest rate derivative transactions for example, principal does not change hands, it is simply used to calculate things like interest due.

<sup>20</sup> We assume that these are USD although the report does not state the units.

was added and in November another small deal, for 70,000,000 pesos was added. Nothing more was done over the subsequent months.

It appears that banks in the Philippines are not doing interest rate forwards or options. In contrast, FCDUs, did show interest rate derivative activity—there were \$252 million of interest rate swaps outstanding with non-residents.<sup>21</sup>

The historical data going back to the onset of derivatives trading in late 1996 show an initial strong expansion followed by contraction and stagnation (see **Table II 4**). The expansion in derivatives activity lasted from September 1996 to June 1997. Thereafter, there was a sharp decline through August 1997. Although there was some recovery from small values of late 1997, as of June 1998 the total volume outstanding had not recovered its June 1997 level. One can guess that the Asian crisis and the responses of the BSP have played a role in this reduction in activity in the derivatives market.

#### **Some comments on derivatives activities**

As we noted above, there is relatively little activity in any type of derivative. Although there are peso dollar forwards and swaps outstanding, it is noteworthy that there is no activity in currency options. Moreover, BSP has discouraged the banks from doing non-deliverable forwards and has severely restricted the size of their net foreign exchange exposure.

The lack of activity in any type of interest rate derivative and foreign currency options is surprising. In other parts of the world many businesses use interest rate swaps to reduce their exposure to changes in domestic interest rates. Many businesses use currency options to reduce their exposure to the exchange rate.

It is possible that Philippine businesses are not aware of these hedging possibilities and so do not engage in these contracts. However, in the course of our research we have spotted some

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<sup>21</sup> It was unclear whether these were dollar-dollar swaps, where both the pay and receive are dollars or peso-peso swaps.

impediments to the operations of the derivatives market in the Philippines that we think are inhibiting these markets. In particular, these impediments inhibit the use of interest rate swaps, forex options and the use of non-deliverable forex forward contracts. It is important to consider these regulatory impediments and their costs.

- ◆ **Interest rate swaps** (peso-peso) are inhibited by prohibitions on shorting government securities. If a business wants to pay a fixed rate to a bank (and receive a floating rate payment) in a swap, a temporary hedge for the bank consists of shorting government securities. If shorting is not possible, the bank that provides the swap must either sustain interest rate risk itself, or postpones the deal until they find someone who wants the opposite side of the swap. Neither the bank taking on the risk and not hedging nor the business holding on to the interest rate risk because they cannot do a swap is in a desirable situation.
- ◆ **FX options activities** are inhibited by net exposure limits. Net exposure limits are the lower of 5 percent of bank capital and \$10,000,000. These are very small for the banks that are active in these markets.<sup>22</sup>

At present, options positions are not included in the calculation of net exposure limits. However, any spot or forward positions taken to hedge the options risk would be included in the calculation. Assume, for example, that a bank sells a dollar call to a Philippine business which has dollar obligations (the dollar call option acts as a quasi hedge for the business which, without the call, would be hurt if the dollar strengthens). An appropriate hedge for the bank that sold the dollar call option is to buy dollars forward in an amount that represents a fraction of the option being hedged. If BSP counts only the dollar forward position of the bank and not the option the bank is short, the bank may be caught between two undesirable situations: (1) failing to hedge, i.e. not buying dollars, and perhaps not meeting prudent risk limits or (2) hedging appropriately.

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<sup>22</sup>In addition, it is our impression that at present banks do not calculate options correctly because the exposure generated by the options themselves are omitted.

but failing to meet the net exposure limits on foreign currencies<sup>23</sup> In view of this problem, it is not surprising that banks are engaging in options transactions

- ◆ **Non-deliverable foreign exchange forward contracts (NDFs)** have been discouraged by the BSP While the BSP is understandably worried about speculation against the peso, NDFs as well as cash-settled forwards represent instruments that have lower credit risk than normal foreign exchange forwards As such, NDFs make for a safer system with less risk

### **Some general comments on foreign exchange markets**

The Asian crisis, which erupted in Thailand in mid 97, was followed by widespread financial turmoil in other countries in the region As the currency declines spread from one country to another, some of the countries in the region sought to insulate their markets from speculators by imposing various regulations

What lessons can we learn from these experiences? At present, economists do not agree on whether capital controls can be effective or are desirable Before the crisis there had been almost universal agreement that open markets and the free flow of capital were desirable But, the occurrences of the last year have caused some to change their minds about the desirability of open capital markets Hopefully, there will be some careful studies of these events undertaken in the near future

There are several issues here

- a) Can capital controls or some other types of restrictions limit exchange rate movements in the short term, e g , did any of the actions taken by BSP limit movements in the peso-dollar exchange rate Private participants can often find a way around any restrictions that central bank impose In other countries at other times, the historical experience has been that central banks can rarely stand against private market forces

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<sup>23</sup> The example described assume that the bank has no other obligations which offset the risk of its short position in the dollar call option,

b) A second issue is the longer-term effect of more restrictive markets. Less liquidity, the absence of speculators, the greater reluctance of foreign investors, etc. may raise capital costs for many years to come.

c) Derivatives can sometimes provide a way around foreign exchange restrictions, if the restrictions are narrow. Forward contracts do not show in spot positions, options and swaps may also fail to be counted. Structured notes can hide almost any bet. Efforts to squelch one type of derivative may induce alternatives. And, derivatives provide a large aggregate benefit that has to be weighed against the “easier speculation” that they may permit.

### **Anticipated effect of financial derivatives on monetary policy**

Derivatives act primarily to redistribute risk. Currency forwards and swaps redistribute foreign exchange rate risk, as do currency options. Interest rate swaps, forwards, and options redistribute interest rate risk. It is possible that this redistribution may reduce the effectiveness of monetary policy. It also is possible that derivatives would act to improve the effectiveness of monetary policy. What is easier to conclude is that derivatives provide an overall gain to an economy since they allow “trading” of risk which in turn improves economic welfare. Since this is a key point in the decision of whether to facilitate the further development of derivatives—both their scope and magnitude—it is worthwhile considering why this is so.

By and large, the introduction of financial derivatives does not change the amount of aggregate risk that must be born in the economy, but it shifts the distribution of risk from one set of agents to another—such as residents to non-residents, merchants to banks, or from one group of investors to another. Thus, it allows each market agent to choose that portion of risk in any economic transaction or asset holding to which his wealth will be exposed. Although banks may be intermediaries for much of the derivatives trades, there is no reason that they need to retain the risk. That is, financial derivatives are (for the buyer of the fixed position) precisely analogous to insuring against a physical risk or tort liability to which real property is exposed.

Just as hazard insurance relieves the property owner of the risk of loss due to fire, flood, theft, or accident liability, selling foreign exchange forward relieves the commercial agent of the risk of

loss due to adverse movements in the value of foreign debt. The welfare gains from these arrangements are that it allows specialization in particular forms of risk bearing by those economic agents and firms that have the comparative advantage in doing so. Typically, this is due both to specialization gains in information or economies of scale or from diversification. Thus, insurers both know the actuarial distributions of property hazards and are able to diversify a large portfolio of insured-policy holders whose claims will be independent of each other. The insured policy-holder can then specialize in the bearing of commercial risks—retail trade or whatever activity—without being exposed to loss from a fire or other catastrophe<sup>24</sup>

Similarly, an importer can buy foreign exchange forward to cover a contracted-for payment, or he can sell it forward if his transaction will be the receipt of a payment from abroad. Like the businessman who insures against a physical casualty, this forex sale (or equivalent option transaction) allows him to specialize in the form of risk-bearing—commercial risk—in which he is a specialist and, therefore, has better information.

This redistribution of risk from those who find that financial risk arises from their day-to-day business to others who are willing to act as insurers (or speculators) improves economic efficiency because it allows the totality of economic risks—which is unchanged—to be borne by those who can do so at least cost. In our importer example, the merchant who resells imported merchandise in the domestic market still bears a commercial or marketing risk, however, he is presumably a knowledgeable specialist in bearing this commercial risk. The gain is that he can specialize in his area of expertise by divesting himself of the risk on the exchange rate to other agents (banks and forex corporations or speculators) who are knowledgeable experts in that arena. Thus, the importing merchant can specialize in running an efficient business with his profits unaffected by subsequent exchange rate movements. Without these onerous risks on the exchange rate, he will be willing to engage in more business and investment activities than he would if could not divest the risk through hedging by buying forward dollars or buying a dollar call option.

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<sup>24</sup> Whereas a person who buys fire insurance may be less careful about fire risk and increase the possibility of fire, the agents who hedge has little role in the macro risks that cause exchange rate or interest rate changes.

Although business risk is simply redistributed by derivatives—which is clearly a good thing, it is possible that derivatives increase the amount of systemic risk<sup>25</sup> in the financial system, by increasing the interconnections amongst banks/dealers. It is also possible that derivatives allow the easier use of destabilizing hedging procedures (for example mimicking a put option by shorting futures in a delta ratio, this requires more selling the lower the price of the security goes!) In this latter case, where the activity is destabilizing, more volatility rather than less could result. While these dangers are real, most economists view these risks as small compared to the benefits provided by derivatives.

In regard to monetary policy, derivatives change the distribution of income that results from a change in interest rates (or exchange rates). Risk averse individuals who have hedged will not have the losses (or gains) while those who were willing to take risk will have the losses or gains.

The effect of interest rate hedging works analogously to the hedging of forex risk. If interest rates work primarily through a price channel—by affecting spending and investment decisions, based upon the interest cost vis-a-vis return—it is not apparent that this redistribution will matter. If they work primarily through a wealth channel, the redistribution could mitigate their effect on the real economy. For example, if those who decided to hedge their interest rate risk would have otherwise suffered losses and severely reduced their spending (whereas the risk bearers may be less sensitive to their losses), then a given interest rate change would have less impact on the real economy in the presence of derivatives.

Two reports on the issue are worth examining in this connection. The BIS Hanooun Report, 1994 “Macroeconomic and Monetary Policy Issues raised by the growth of Derivative Markets” and an IMF report by C. Vrolijk “Derivatives Effect on Monetary Policy Transmission.” Their view is that the policy transmission mechanism to the financial markets would tend to be faster in an economy with active derivative markets but that the transmission to the real economy (output and inflation) may be slowed.

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<sup>25</sup> Systemic risk is the risk that the whole financial system may collapse as a result of one or several business failures that bring down one bank.

In regard to exchange rates, a depreciation would affect importers less negatively if they had hedged. Exporters would have less of a positive effect if they hedged. Since in the face of a depreciation, exports would tend to expand, it may be relevant that these export-related businesses would have less cash profits to put into expansion. However, importers who hedged would not be forced to cut back as much—although prices would induce some contraction without the “wealth” effects.

Regardless of the mechanism of monetary policy, the amount of derivatives activities in the Philippines at this time is too small to have any impact on the implementation of monetary policy. Still, if derivatives affect the measures of the monetary aggregates, they may nevertheless affect monetary policy decisions.

#### **Effect of derivatives on the monetary aggregates**

Financial derivatives may cause changes in the measured monetary aggregates. Amongst the possibilities are the following:

- ◆ Ability to hedge interest rate risk may cause business to hold less liquid assets
- ◆ Ability to hedge foreign currency exposure may cause business to hold less dollar denominated assets and more peso ones
- ◆ “Engineered” swaps may allow people to replace peso time deposits with dollar ones. That is, it is possible that time and saving deposits, previously in M2, are counted as dollar deposits, which are not in M2 but M4. Apparently, in order to avoid reserve requirements, some people are investing in dollars and dollar deposits combined with forward sales of dollars. Effectively, they have **no** risk on the exchange rate—despite appearances, they are in a peso time deposit.

Whether any of these possibilities really alter the monetary aggregates depends on what others who are party to these transactions are doing. For example

- ◆ Are the counter-parties to the interest rate hedge holding more liquid assets? Would those assets be counted in M2 or M3, offsetting the reduction of liquid assets by those who have locked in a fixed rate?
- ◆ Are the counter-parties to the foreign exchange hedge holding more dollar assets?
- ◆ In the case of engineered swaps, are the original holders of dollars investing their peso proceeds into time and savings deposits which would be captured in M2, offsetting the reduction of peso time deposits that occurs because of the substitution of engineered swaps for peso time deposits?

To figure out the effect on these innovations on the monetary aggregates, we need to know how both counterparties to the derivatives transaction react. If the counter-parties react in opposite ways, there may be little or no effect on the monetary aggregates. An IMF study by Conrad Vrolijk "Derivatives Effect on Monetary Policy Transmission" argues that some new synthetic securities created with derivatives can reduce the broad aggregates and make them less suitable as targets. A Board of Governors 1996 study by Martina Copelman, "Financial Innovation and the Speed of adjustment of money demand: evidence from Bolivia, Israel, and Venezuela" finds a reduction in real money balances (M1 relative to the price level) attributable to financial innovations.

There is another important issue: the availability of hedging instruments may change behavior of those who anticipate using financial derivatives. If so, the monetary aggregates may change. The potential users may change their asset allocation whereas the potential counter-parties do nothing until a transaction actually occurs.

While all in all, it appears likely that the reallocation of risk and the perception that it can occur would tend to reduce some types of liquid assets. Nevertheless, this is an empirical issue and, stated as sharply as possible for purposes of assessing the monetary policy implications, the relevant questions (see Section IV below) are

- ◆ Has the introduction of financial derivatives reduced the controllability of monetary aggregates and, if so, which ones?

- ◆ Has the introduction of financial derivatives reduced the dependability of the linkage between monetary growth and inflation?

As will be seen in the estimates reported in Section IV, the answers are firmly negative

### **III Financial Market Regulatory Structure and Oversight**

The Philippine banking system includes independent commercial banks, commercial banks associated with non-bank financial organizations, and universal banks--commercial banks associated with non-financial (commercial and industrial) organizations. Banks associate with other organizations as parents of subsidiaries, holding company affiliates, and through common ownership. The BSP classifies banks as commercial banks, thrift banks, rural banks, and specialized government banks. Commercial banks are further classified as regular and expanded universal commercial banks. Expanded commercial banks have higher minimum capital requirements and, in addition to the activities of regular commercial banks, are allowed to exercise the powers of investment houses. They may invest in the equity of companies engaged in businesses not related to banking and own up to 100% of the equity of allied financial undertakings other than commercial banks. Although most banks are independently owned rural institutions, several banks operate branch systems and ATM networks throughout the Philippines. Five banks controlled about 35% of commercial bank assets of P3,399 trillion at year-end 1997.

As of August 31, 1998 there were 21 expanded (universal) commercial banks. The 21 universal banks include the Development Bank of the Philippines and the Land Bank of the Philippines, both of which are government banks with expanded commercial banking authority, and the ING Bank which is a branch of a foreign bank. **Table III 1** lists the number of domestic financial institutions in the Philippines in each of the last three years. **Table III 2** lists the total assets of each type of financial institution in the last three years. Figures are provided for three years to give a sense of how fast domestic financial sector institutions have expanded. The banking system also includes branches and subsidiaries of regional and global international banks. At December 31, 1997, foreign bank branches and subsidiaries held 11% of local assets. Current policy favors some system consolidation and concentration to eliminate weaker institutions.

#### **Regulatory structure of the Philippine banking system**

The Central Bank of the Philippines (BSP) regulates all Philippine commercial banks and related organizations with banking and quasi-banking authority, such as thrift institutions that take deposits and make loans and finance companies that issue deposit substitutes and make loans. In addition, the BSP serves as an umbrella regulator of bank related organizations with other primary regulators, such as the Securities and Exchange Commission, or with no primary regulator. It approves significant original and subsequent investments in all bank-related organizations, and monitors inter-bank transactions among all related organizations.

The BSP examines at least once within a 12-month cycle all banks and significant bank related organizations and activities within its jurisdiction. In large or troubled institutions examiners may be on-site for very long periods of time. Examinations focus on asset quality, capital adequacy, risk management and compliance with all relevant laws and regulations. In addition, as part of the supervisory process, the BSP conducts off-site monitoring of banks through the review and analysis of bank reports.

The BSP employs risk-based capital standards similar to the Basle Standards and will adopt the Basle Standards upon passage of amendments to the General Banking Act being prepared by the BSP. Trading account securities are marked to market daily and incorporated into financial statements monthly. Asset classifications and the required adjustments to capital are being expanded to classification and charges common in developed countries. Examinations of bank and bank related organizations are consolidated to provide a single view of all a banking institution's activities.

All Philippine banks are audited annually by a public accounting firm. The auditors' recommendations to bank management are available to BSP examiners. All Philippine banks are required to make their balance sheets publicly available quarterly. However, only banks reporting under the securities disclosure statutes must make available in their annual reports income statements and consolidated balance sheets of the bank and all controlled subsidiaries.

The Philippine regulatory structure includes the Philippine Deposit Insurance Corporation (PDIC). The PDIC disposes of troubled banks referred to it by the BSP. The PDIC has a small

examination staff that can supplement BSP examinations of the most troubled institutions, in anticipation of their likely demise. Most bank failures in the Philippines result from insider transactions.

### **Regulatory anomalies**

Three features of the Philippine regulatory structure and practice are relatively unique regionally and globally.

#### **1) Personal liability of bank regulators**

BSP examination personnel are legally responsible individually for their official acts. Article II, Section 15(3) of R.A. No. 7653 of The New Central Bank Act states that the BSP shall “indemnify its members and other officials of the Bangko Sentral, including personnel of the departments performing supervision and examination functions against all costs and expenses reasonably incurred by such persons in connection with any civil or criminal action, suit, or proceeding to which he may be, or is, made a party by reason of the performance of his functions or duties, unless he is finally adjudged in such action or proceeding to be liable for negligence or misconduct.” In most developed countries a public employee is accountable for official acts to the agency that employs him or her, and the agency is accountable to third parties and the courts. Requiring an individual examiner to take the initiative in defending him or herself in a legal action involving an official act can have an adverse influence on his or her rigorous pursuit of the public interest in bank regulation. Most legal actions result because depositors or creditors are facing a financial loss in a troubled institution and examiners are being accused of causing or contributing to the loss. To be identified personally and publicly in such an action must be a daunting experience no matter how certain one is of indemnification.

#### **2) Secrecy of individual account data**

Philippine secrecy statutes bar even bank examiners from reviewing individual depositor accounts under the depositor’s name (sometimes a numbered account may be reviewed). This restriction, at best, requires circuitous examination practices to achieve results attainable directly in other jurisdictions. It may invite credit extensions through deposit accounts in the form of uncollected funds that must be detected through inappropriate check movements. It may also

entice flight capital to the Philippines that destabilizes funds flows. Since money laundering is not illegal in the Philippines it is not an issue even though the secrecy statute may contribute to such behavior. The Philippines could rank higher regionally in efforts to constrain money laundering (see Annex III 1). Most countries are able to police money laundering activities with proper legal protections for their institutions and bank customers without setting aside their bank deposit secrecy laws. The Philippines should move in this direction.

### **3) Lack of prompt corrective details in regulatory statute**

Some troubled banks receive sustained financial assistance from the BSP before being referred to the PDIC. Some experience a form of bank holiday. During this bank holiday insured and other depositors may not have access to their deposits. Delays occur when depositors and creditors attempt to avoid losses through extended negotiations among themselves and with the BSP. The disposition of troubled institutions is the most common cause of legal actions against BSP officials. Moreover, if slow pay-outs in isolated resolutions determine depositor expectations in a systemic risk, they can exacerbate managing the risk. Depositors may choose to withdraw their funds from even sound institutions on the slimmest rumor of possible trouble, because they fear waiting an inordinate amount of time for their money in a pay-out.

The Philippines has statutory provisions in some detail constituting a prompt corrective action mandate and regulations for dealing with troubled banks are being strengthened (as in the recent BSP policy statement). These statutory provisions, regulations, and policy statements may seem adequate given the good performance of the Philippine banking system and its regulators during the Asian crisis, but the experience of many developed countries suggests a more demanding prompt corrective action statute may be necessary in the future. Such a document would require the BSP to take, at a minimum, specific corrective action if a bank's capital declines below designated levels, to liquidate a failed institution in a specified least-cost manner, to extend financial assistance to a troubled institution only after certifying that it is solvent and to recapitalize an insolvent institution only after declaring, with the concurrence of the Minister of Finance, that its failure would pose a systemic risk. A prompt corrective action statute verbally and quantitatively specific is a protection for regulators (the BSP and PDIC) and the public (taxpayers). It protects the regulators from criticism for taking controversial action against

troubled institutions, and protects the taxpayer from paying bank rescue costs that become so large the deposit insurance fund may not be able to pay them. Without a detailed mandate, regulators are under enormous pressure to delay liquidating insolvent institutions and to financially support ailing institutions that are solvent and pose no systemic risk. A copy of the United States prompt corrective action statute is available in **Annex III 2**.

### **Regulation of derivatives**

Eleven domestic and international banks and branches have BSP licenses for expanded derivatives operations, and one has a regular derivatives license. As the financial uncertainties from the Asian Crisis recede, more institutions will be licensed to expand derivatives activities beyond just foreign exchange forwards. In addition, trade related and dollar limits may be eased. To obtain an expanded derivatives trading license an institution must meet several internationally accepted standards regarding its financial condition, risk management capabilities, internal information and accounting systems, and management and directorate oversight. It must also agree to BSP reporting requirements for derivatives and foreign exchange positions--weekly, monthly, etc. In complying with BSP prequalification requirements a bank must submit a policy manual containing the features prescribed in the regulations.

The BSP monitors derivatives activity with the reports to its Foreign Exchange Department and with bank examinations. Examiners can be in residence in bank trading departments for lengthy periods of time. Examiners review derivatives activity in all BSP-regulated entities of the bank to get a consolidated view of trading strategies carried out in multi bank units.

During examinations, examiners review the adequacy of bank accounting and information systems. They verify that derivatives transactions are properly and timely recorded, that there is dual control of transactions by bank personnel particularly as regards the separation of derivatives trading and pricing responsibilities, and that senior management and directors are receiving timely and accurate reports of derivatives activity. The BSP Supervision and Examination Sector is adopting a risk-based examination approach which includes an assessment of the risk management capability of banks. During an examination, bank examiners do not

compute the amount of expected risks in derivative positions, since banks are better positioned to get this amount using their models/programs. However, bank examiners request their value at risk amounts as generated from the banks' models/programs, and they do backtesting to determine whether the bank's value at risk computation is reliable. Examiners also assess internal and external audit programs to be sure there are regular reviews of bank accounting and reporting systems by people outside the management accounting and reporting networks.

Derivative positions with a counter party may be netted, if the bank has a written agreement with the counter party authorizing the netting arrangement. A bank's consolidated net value of derivatives, marked to market, is reported as a contingent *asset or liability* on the bank's consolidated balance sheet. Although the BSP has not adopted the Basle market-risk-capital-requirement pending the passage of amendments to the General Banking Act, banks are expected to have methodologies that compute the risks in derivatives transactions. The BSP does not apply risk based or other capital requirements against the value at-risk portions of transactions. Aggregate bank and related organization derivatives risks have no capital charge, unless some portion of the transaction involves a credit, securities, or foreign exchange feature that carries a capital charge, for example a structured loan.

When the BSP discovers derivatives transactions it considers improper it prohibits the specific transactions until the bank or banks involved explain the transactions, including the risks and purposes. Bankers and their trade associations have regular exchanges of views and information with the BSP on banking issues, including derivatives issues. Since many derivatives transactions reduce reserve requirements or taxes, the derivatives dialogue is particularly important for the acceptance of these financial innovations. System derivatives activity has been limited to date but there have been no significant losses on derivatives transactions. The BSP's derivatives effort seeks to be as effective as possible when derivatives activity increases coming out of the Asian crisis.

### **Assessment of derivatives regulation**

The BSP regulators and the Foreign Exchange Department recognize their need for the technology and trained personnel to independently value derivatives transactions and strategies where market values (prices) are not available or meaningful. In addition, the BSP should be able to verify bank computations of risk exposure with formulas or mathematical models. SES officials and examiners should have training sessions about twice a year for a week or two at most. A mix of short and longer sessions may also be appropriate. Sessions longer than two weeks will involve more information than can be absorbed effectively. The training should deal with derivatives activities, market transactions and examination issues, that are reviews of the most important current market activities and examination work, but at least one session should deal with emerging market transactions and examination techniques. There should be a discussion of the newest derivatives products, their structures, purposes, and the ways to identify and value them and to determine the risks to be charged-off and assigned a capital requirement. The training should include a discussion of the experience in other countries with these instruments.

When the Philippines adopts the Basle capital standards, BSP regulators should be ready to apply risk based capital standards to derivatives positions. They should be able to compute the current exposures independently and be able to verify bank computed exposures where market values are lacking or where several transactions with the same counterparty need to be aggregated. Here again, it would be helpful to introduce SES officials and examiners to the application of the Basle standards in the aforementioned training sessions on derivatives. Application of the standards to these instruments can be controversial. Many applications are subject to interpretation. SES personnel should be prepared with the latest information on their use in other countries and should be trained for their use domestically. The better prepared SES personnel are to administer the standards and the more confident they are in applying them, the better the standards and examiners will be received in the banking community. The reception and understanding of the Basle standards elsewhere in the BSP and in the Ministry of Finance, where their use will be discussed and considered in foreign exchange, monetary policy and tax transactions, can be enhanced with a familiarization session for these organizations. They will reach their own conclusions on how the risk based capital standards for banks affect their

activities, but they will do so more sympathetically, if they are introduced to the standards under the auspices of the BSP department responsible for applying them

It would help all regulation, including derivatives regulation, if the unusual features of the Philippine regulatory system (secrecy, examiner legal liability, and slow corrective action) could be reduced or eliminated. The secrecy particularly impedes an understanding of deposit structured derivatives

The BSP should seek to have banks publish their income statements quarterly as they do their balance sheets. This added disclosure restrains bank activities that may reduce earnings (including high-risk derivatives strategies) which could generate unwelcome comparisons with competitors and facilitates market scrutiny of the institution's performance. It is a form of self-regulation

As Philippine derivatives activity expands, local options and futures exchanges would be useful in establishing better derivatives pricing, liquidity, and settlement information and procedures. The broader and deeper the local markets the easier it will be to regulate these financial innovations. The BSP should request an assessment of the local options and futures markets, comparing their development to similar markets overseas, and indicating the next likely and desirable step in local development. The assessment should not be too detailed or a how-to assessment. These can come later. It appears early for options and futures exchanges in the Philippines, but the BSP should know why, based on periodic reviews by an independent party (not affiliated with local industry interests). The BSP should also be sensitive to the signs of changing conditions that would make organized exchanges appropriate and be prepared to be a constructive and informed supporter. The BSP should take the initiative among government agencies in addressing the policy implications of establishing exchanges, given the significance of organized exchanges to bank safety and soundness and to the stability and efficiency of the financial markets

## **Summary**

The Philippine banking system is a full service system with approximately P3,399 trillion in assets at year-end 1997. It provides all the customary credit and other financial services for a developing economy, it operates nationwide through branches and electronic facilities, and in the current Asian Crisis can be described as comparatively conservative. Regulation by the BSP is rising to international standards for a banking system of the size and complexity of the Philippine system, but there are important steps ahead. The Philippines still has to adopt the Basle capital standards, and there are bank secrecy, and examiner legal liability issues that need addressing. Regulation of derivatives is gaining but will have to do better, particularly if there is a significant expansion of the derivatives market. We have several recommendations focused on derivatives regulation which we were charged with reviewing.

The BSP needs to upgrade its regulatory staff and technology to independently value bank non-exchange traded derivatives, futures and options. It should be able to independently verify amounts to be charged-off (marked-to-market), and the exposures that require a capital allocation under the Basle risk-based-capital-standards, as soon as the General Banking Act is amended adopting the standards in the Philippines. Bank regulation in general, and derivatives regulation in particular, needs enhancing by reducing or eliminating the adverse effects of bank secrecy and examiner legal liability rules. The recently strengthened prompt corrective action policy for resolving troubled banks is a big step in the right direction but will need further strengthening if experience in other countries is indicative. Banks should be required to publish their income statements as they do their balance sheets advancing disclosure (transparency) of their operations and self-regulation. When the derivatives markets are sufficiently mature to accommodate them, options and futures exchanges should be established to facilitate the liquidity, pricing and settlement of derivatives transactions locally.

earlier in this report, this section examines the empirical relationship between various monetary aggregates and economic activity. If financial innovations in Philippine financial markets have adversely affected the relationship between BSP policy actions and the monetary aggregates, and between the monetary aggregates and economic activity, the policy question is to determine which aggregate has been most affected. If the innovations have caused depositors to shift their asset holdings from narrow forms (i.e., demand deposits) to deposits that are more savings oriented (i.e., time deposits), then the broader aggregates may show a more stable relation with economic activity. This would make them a better choice as a policy variable than the narrower measures<sup>26</sup>

To examine these issues, in this section we examine the relationship between the behavior of the monetary aggregates and inflation and GNP growth. But first we examine the connection between changes in the BSP's reserve measures—reserve money and base money—and the monetary aggregates: the so-called controllability issue.

### **How controllable is money?**

A useful framework within which we can discuss the relation between changes in reserves and the monetary aggregates is given in the following equation:

$$(1) \quad M_t = m_t B_t$$

where  $M_t$ , the monetary aggregate, is defined as the product of the money multiplier  $m$  and the monetary base  $B$ . The monetary base is controlled by actions taken by the central bank. The money multiplier, on the other hand, reflects portfolio decisions taken by individuals and banks in the economy. The multiplier summarizes decisions by individuals regarding their distribution of financial assets between alternatives such as currency, demand and time deposits. It also captures actions taken by banks with regard to the types of deposits they offer and their holdings of reserves.

It is arguable that financial innovations give rise to changes in the money multiplier. The availability of new instruments allows individuals and financial institutions to alter the form of

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<sup>26</sup> We use the term "indicator" and "intermediate target" interchangeably. Even so, the latter term often connotes a degree of precision between policy actions, changes in the monetary aggregates and economic activity that may

financial assets held as conditions warrant. Even though such changes affect the multiplier and, therefore, the relationship between a given amount of base money and the monetary aggregates, the question for policy makers is whether these changes in the multiplier are predictable.

**Figure IV 1** shows the multipliers for the M1, M3 and M4 aggregates since 1980<sup>27</sup>. There are two features of the multipliers worth noting. Most noticeable is the lower level of variability in the M1 multiplier relative to the M3 and M4 multipliers. Relative to the broader aggregates, the M1 multiplier appears to have been least affected by the financial innovations (and financial crises) that have occurred over the past two decades. Also evident is the fact that the M3 and M4 multipliers have experienced substantial changes primarily during two periods: the 1982-84 crisis period, and more recently the financial liberalization that began in 1993.

To assess the link between the monetary base and the monetary aggregates—between policy actions and the aggregates—we employ several approaches. One is to address the question of how predictable the different money multipliers are. If the multipliers are relatively predictable, then the central bank should be able to predict the effects of policy actions taken to alter the levels of the monetary aggregates. Another approach is to relate movements in the monetary aggregates to changes in the monetary measures controlled by the BSP, i.e., reserve money and base money.

### **Predicting the money multiplier**

Financial innovations can affect the behavior of the money multiplier over time. The impacts of the financial liberalization programs beginning in 1993 are evident in the M3 and M4 multipliers shown in **Figure IV 1**. Even though the multipliers changed at this time, are these changes predictable? In other words, can the past behavior of the multiplier be used to predict movements in the multiplier? We address this question by estimating a regression equation in which the current value of the multiplier is regressed on only its own lagged value. Such an equation takes the form

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simply not be there

<sup>27</sup> The multipliers shown here are the ratio of money to base money. Measuring the multiplier using reserve money gives a qualitatively similar picture as shown in Figure IV 1.

$$(2) \quad \log(\mathbf{m})_t = \mathbf{a}_0 + \mathbf{b}_1 \log(\mathbf{m})_{t-1} + \mathbf{e}_t$$

where  $\mathbf{m}$  represents the M1, M3 and M4 multiplier, measured in logarithms, the subscripts  $t$  and  $t-1$  represent time,  $\mathbf{a}$  and  $\mathbf{b}$  are parameters to be estimated, and  $\mathbf{e}_t$  is an error term that captures changes in the dependent variable not explained by the lagged value of the multiplier. In our analysis, multipliers are measured using reserve money (RM) and base money (BM). The results of estimating equation (2) over the period 1980:2 through 1998:1 are reported in **Table IV 1**<sup>28</sup>

The upper tier of **Table IV 1** reports the results based on the reserve money (RM) definition. The results indicate that the multipliers are significantly related to their own past value. In other words, a relatively good predictor of the level of the multiplier this quarter is simply its value last quarter. In every instance, the estimated coefficient is not statistically different than one<sup>29</sup>. This means that the *change* in the multiplier is simply equal to a constant. The results using the base money (BM) definition are reported in the lower tier of **Table IV 1**. These results are qualitatively similar to those using reserve money. In every instance the coefficient on the lagged value of the multiplier is close to unity. And the estimated equations all display a high level of explanatory power. The adjusted  $R^2$  in every equation is close to or over 90 %.

The estimation results in **Table IV 1** indicate that the multipliers for each of the monetary aggregates are easily modeled. Statistical tests were used to determine if the estimates found in **Table IV.1** were stable over time. Because a pre-determined breakpoint is needed for these tests, we elected to use 1992:4. This choice seems reasonable given the interests that motivate this study and the initiation of financial liberalization programs that began at this time. If the estimated multiplier relationships are stable across the period before and after the time of financial liberalization, then the financial innovations that have transpired have made money controllability unpredictable.

**Table IV 2** reports our stability test results. Two test statistics are reported. The one labeled "Break" tests whether the coefficients using data taken before and after 1992:4 are statistically different. The other test labeled "Forecast" predicts the value of the multiplier for the period

<sup>28</sup> The data used in estimating equation (2) and throughout the rest of this analysis are seasonally adjusted quarterly values. The seasonal adjustment procedure available in EVIEWS was used.

<sup>29</sup> Similar results based on monthly data have been found for other countries.

since 1993 4 and tests the size of these forecasts' errors large errors suggest instability in the equation For both tests, an F-statistic is reported along with the associated probability level The calculated test statistics suggest that the estimated regressions using M1 and M3 in **Table IV 1** are stable across the 1992 4 break point In all instances the associated probabilities of the test statistics indicate that we cannot reject the notion that there was no change in the estimated relations during the past five years compared with the previous period

This is not true, however, using the broad M4 measure Based on the Break test result, the notion that the estimated relationship is not stable across the 1992 4 break point cannot be rejected by the data Using reserve money or base money, the hypothesis of stability is rejected at any reasonable level of statistical significance However the results from the Forecast test suggest that the forecasts from this model after 1992 are not larger than those generated from the period prior to this break Unlike the uniform results obtained for M1 and M3, the outcome for the M4 multiplier raises some doubts as to its stability across the period examined

The upshot of these tests is that the money multipliers appear to be relatively predictable from their own past behavior, and that the historical relationship for the M1 and M3 multipliers have not been affected by the financial innovations that have transpired in the last five years In part, this reflects the uniformity of reserve requirements against all classes of accounts which obviates the incentive to establish sweep arrangements Since reserve requirements are the same for all classes of accounts, there would be no reduction in required reserves from shifting account balances from current accounts to time deposits As a result, the controllability of narrow money is not impeded in the Philippines as it has been by sweep accounts in the United States and other advanced financial markets This latter conclusion, however, is not so clear-cut when M4 is used A finding of instability in the estimated equation suggests that the changes occurring in the financial markets since 1992 may have altered the relationship that existed prior to financial liberalization

#### **Assessing the link between money and the monetary base**

The predictability of the money multipliers appears to be unaffected by the recent financial market changes and liberalization We can further assess the possible impact of these financial

market changes be estimating equation (1). Because the data exhibit common trends in their levels, a more meaningful approach is to estimate the equation by converting the measures to growth rates. The equation to be estimated can be written as

$$(3) \quad \text{MDOT}_t = a_0 + b_1 \text{BDOT}_t + e_t$$

where **MDOT** refers to the growth rate of money and **BDOT** is the growth rate of base (reserve) money. In this specification, the growth rate of the multiplier is captured by the constant term  $a_0$ . Equation (3) was estimated using M1, M3 and M4. To determine if the changes in financial markets have impacted the empirical relationship, equation (3) was estimated for the period 1980 up through 1992 and for the period through 1998.1. The results are found in **Table IV 3**.

The results allow two important inferences for monetary controllability. First, looking at the results across monetary aggregates for a specific time period, there is a tighter relationship between changes in the growth of base money and M1 than there is between M3 or M4. This is evident by the fact that, regardless of sample period, the explanatory power of the M1 equation—its adjusted  $R^2$ —is higher than for M3 and M4. Second, the lack of a significant break in the relationships around 1992 suggests that the nature of the financial innovations that have occurred since 1992 have not irreparably damaged the link between base growth and M1 growth. The results using data from before and after 1992 indicate that there is not a very significant relationship between changes in base money growth and M3 growth or M4 growth. Even though the individual coefficients are statistically significant at acceptable levels, the overall explanatory power of the equations is much smaller than that found using M1.<sup>30</sup>

### **Overview of the empirical estimates**

The evidence indicates that the multipliers of the different monetary aggregates are predictable and that the degree of predictability, at least for M1 and M3, has not been adversely affected by recent financial innovations. This latter conclusion follows from the fact that comparing results taken from before and after 1992 indicate little instability in the links between base money and the aggregates. The results for M4, however, suggest the possibility that changes in financial

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<sup>30</sup> We also conducted break tests and found that we could not reject stability based on the forecasts of the estimated regressions for the period 1993:1-1998:1. The relatively low levels of explanatory power of the regressions caution against placing much weight in such tests, however.

markets have changed the behavior of the multiplier since 1992 relative to before that time. We also find that there exists a tighter relationship between base growth and the growth of M1 compared with the broader aggregates. This finding has important implications:

- ◆ First, change in policy as evidenced by changes in base growth is more likely to affect M1 in a predictable fashion than M3 or M4. In other words, M1 appears to be more controllable.
- ◆ Second, recent financial innovations do not appear to have damaged the link between M1 and the base in a manner that would render M1 useless.

This finding has a dual importance. One is that monetary policy, which focuses on the behavior of the broader aggregate M3, may find the use of M1 more successful in determining the likely effects of policy actions. The other is that past financial innovations have not led to a significant deterioration in the base-M1 relationship. This suggests that future innovations, especially those that merely lead to individuals reorganizing their financial portfolios in a manner that substitutes one savings or investment-type asset for another, are not likely to adversely affect the base-M1 link.

### **Money, inflation and income**

The role of monetary aggregates in forming policy may be weakened if financial innovations in domestic and international markets alter historic relationships between intermediate monetary aggregates and the ultimate goal targets of policy—inflation and economic growth. There are long-standing empirical results that suggest that money always should hold a prominent position in policy discussions. Which aggregate should be used and how much weight should be placed on its movements in deciding policy are issues that may be affected by changes in financial markets. We address this concern in this section.

In the Philippines, the increased use of FCDUs and the financial liberalization that has occurred since the early 1990s have raised questions about the appropriateness of using a monetary aggregate as a policy indicator. In this section we address these questions. First we examine the question “Is a monetary aggregate a useful indicator of Philippine inflation?” Then we turn to

the issue of whether a monetary aggregate is still a useful indicator of nominal GNP growth<sup>31</sup> At the heart of both is whether recent financial innovations have disrupted historical relationships

### Money and inflation

A common belief is that “inflation is always and everywhere a monetary phenomenon,” an aphorism attributed to Milton Friedman This proposition is based on the observation that when the output of goods and services increases at the same pace as the stock of money, prices for those goods are generally stable Inflation occurs when the quantity of money increases faster than output Put slightly differently, an increase in money per unit of output is associated with inflation The faster the rate of increase in money per unit of output, the higher the rate of inflation

The applicability of this relation for the Philippines is illustrated in the charts that comprise **Figure IV 2** The solid line in each chart is the level of the seasonally adjusted, quarterly Consumer Price Index The dashed line is the quantity of money per unit of real GNP again both seasonally adjusted and measured quarterly To make the series comparable, we use the logarithm of each series expressed as a percent of its sample average This not only provides comparable series, but it also gives the added advantage that each line’s slope represents its growth rate A steeper line in the chart represents a faster rate of growth While these adjustments will necessarily lead to the two lines having the same average level, their patterns are not constrained by our manipulations

The notion that inflation is directly related to money per unit of output is evident in **Figure IV 2**<sup>32</sup> In every instance, the upward path of the money-per-unit-of-output line is matched by the increase in the price level As expected, higher prices are associated with higher quantities of money per unit of output The overall pattern is the same regardless of the monetary aggregate

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<sup>31</sup> This analysis ignores real income growth The reasons are several, not the least of which is that extensive empirical work suggests that changes in money growth has only a transitory effect if any on real income growth In addition, recessions have proven to be very difficult economic events to predict using any set of economic and policy measures

used. Even so, it also is clear that the degree of closeness in the relation varies across definitions of money. For example, following the rapid inflation of 1983-84, price increases paralleled the narrower aggregates relative to income much better than the broader measures. Over the past decade base money and M1 measured relative to output have a closer relationship to prices than the broader aggregates M3 and M4. After 1993, money rose more rapidly than prices.

This deviation indicates that there occurred a greater demand for real balances of each aggregate, although the departure for M1 seems to have ceased beginning in 1996. This observation stems from the fact that **Figure IV 2** illustrates the relationship between money, income and prices embodied in the quantity theory. This is usually expressed as

$$(4) \quad M V = P y,$$

where  $M$  is the nominal quantity of money,  $P$  is the price level,  $y$  is the level of real output and  $V$  is income velocity. The figures show the relationship of money per unit of output,  $M/y$ , and the price level,  $P$ . Deviations in these lines indicate movements in velocity. The increase in M4 per unit of output relative to the price level after 1993 indicates that M4 velocity was declining faster than it was prior to 1993. In other words, the demand for real M4 balances was increasing faster than before financial liberalization than before.

It is possible to summarize the relations shown in **Figure IV 2** in a more precise manner. This is done by regressing the inflation rate on its own past values and money growth. We estimate the equation

$$(5) \quad \text{INFL}_t = a_0 + B_1 \text{INFL}_{t-1} + C_1 \text{MDOT}_{t-1} + e_t$$

Where  $\text{INFL}$  is the rate of inflation using the CPI and  $\text{MDOT}$  represents the growth rate of the money stock. The notation  $t-1$  denotes the use of lagged terms. In our estimation of equation (5) two lagged values of inflation were included in the equation, along with contemporaneous and four lags of money growth were used.<sup>3</sup>

Equation (5) is used to test two hypotheses. First, given past inflation, does money growth have a significant effect? That is, is the summed effect of money growth (the  $C_i$ 's) different from zero?

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<sup>3</sup> Results using the reserve money definition are similar to those of base money and therefore, are omitted for sake of convenience.

The second test is to determine if adding money growth to the equation significantly improves the model's predictive power. In other words, is there information in money growth that makes it a useful indicator of inflation? The results of estimating equation (5) are found in **Table IV 4**

The regression results corroborate the impression given from **Figure IV 2**. There is a closer statistical relationship between the narrower monetary aggregates and inflation compared with the broader measures of money. Specifically, based on standard statistical tests, the summed effect of a change in the growth of the base money measure—0.64—is statistically different from zero at better than the one percent level of significance. This means that a one percentage point increase in base money growth is associated with an eventual 0.64 percentage point increase in the inflation rate. The effect from a one-percentage point change in M1 growth is also significant although the magnitude of the effect is somewhat smaller, 0.40. Equations that use base money or M1 explain almost 50 percent of the variation in inflation.

The information in the base and M1 measures helps to improve upon the predictive power of past inflation alone. Based on the reported statistics in **Table IV 4** we can easily reject the hypothesis that adding base or M1 growth to the equation is immaterial given past inflation. Knowing past base or M1 growth thus helps to predict inflation. In this sense, these two measures meet one criterion of a useful indicator of inflation.

The results for M3 and M4, however, indicate very little relation between changes in their growth rates and inflation. In both instances the summed coefficient is not statistically different from zero at any reasonable level of significance. In the case of M4, the summed value is even less than zero, quite against the theoretically expected sign. Given the information contained in past values of inflation itself, adding M3 or M4 does not improve the equation's predictive power. The extremely low values of the test statistics indicate that M3 and M4 are of little use in predicting inflation.

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<sup>22</sup> We tested for the addition of additional lags in each equation. In every case we could reject inclusion of two additional lags of inflation and 4 additional lags of money.

## Money and nominal income

Advocates of monetary rules recently have focused on targeting nominal income growth, rather than inflation or real income specifically<sup>34</sup> This approach reflects the difficulty in separating the price and real output changes from observed nominal income Using the same approach as that taken above, we examine whether financial innovations have affected the empirical relationship between money and nominal GNP growth for the Philippines Innovations may have induced individuals to substitute out of narrow deposits into broader, higher-return assets—shifting from M1 to M4 The question is whether the broader aggregates are more reliably related to income than the narrow aggregates

To test for these possible effects an equation similar to (5) was estimated, with nominal GNP growth replacing inflation As before, two statistical tests are carried out One asks whether the summed effect of money growth on income growth is zero, the other asks whether the additional information contained in money growth augments that already captured in past GNP growth The statistics calculated from both of these tests along with summary statistics of the estimated equations are reported in **Table IV 5**<sup>35</sup>

The results tell a story similar to that found for inflation The summed effect of money, once past GNP growth has been accounted for, is significant only for the base and M1 measures of money For those two measures, we cannot reject the notion that money helps to predict nominal GNP growth once the information in past GNP growth is known The calculated statistics from both tests are significant at better than the 1 percent level of significance Moreover, equations using the narrow monetary measures explain about two-thirds of the variation in GNP growth<sup>36</sup>

The results using the broader aggregates fare much worse, however The results in **Table IV 5** indicate that adding M3 or M4 growth rates to an equation that already includes lagged GNP

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<sup>34</sup> For example McCallum (1987, 1988) suggests a base rule that relies on the empirical relation between monetary base growth and nominal GDP growth For another view, see Hafer, Haslag and Hein (1996)

<sup>35</sup> The estimated regression includes 4 lagged values of GNP growth, contemporaneous and four lagged values of money Additional lags for either variable were not found to statistically improve the explanatory power of the estimated equations

<sup>36</sup> The adjusted-R squared for the equation with only past GNP growth is 0.57

does not improve the fit of the equation. Whether the test is on the significance of the cumulative effect or on the informational content of the variables, the calculated statistics never achieve significance at any reasonable level. Stated slightly differently, these results indicate that the information contained in the growth rates of M3 and M4 is redundant once past GNP growth is known. Thus, it does not appear that M3 or M4 offer useful monetary policy indicators of nominal GNP growth.

### **Conclusions**

The evidence presented in this section is consistent with the notion that the narrower monetary aggregates—base money and M1—are more useful as indicators of inflation and nominal GNP growth than the broader measures, M3 and M4. As noted in our discussion, the unchanged controllability of M1 (stability of M1 multiplier) probably reflects the uniformity of reserve requirements across all classes of accounts which obviates the incentive for Philippine banks to shift deposit funds out of current accounts into time deposits (sweep accounts). This finding suggests that the effects of innovations in the Philippine financial markets have not affected the usefulness of money as a policy indicator. They also suggest that what changes in the monetary aggregates that have occurred may have affected only the portfolio distributions embodied in the broader measures. If this is true and these substitutions reflect changes from one type of savings vehicle for another, then the impacts on the economy may be minimal. Although the results of this study are tentative, they suggest that future innovations and portfolio shifts may not reduce the role of the narrow measures of money as policy indicators. The results also indicate that reliance on broader measures may be misplaced. According to our estimates, ignoring the behavior of base and M1 is an ill-advised policy prescription.

## V Financial Market Developments in Other Emerging Market Economies

Financial market liberalization has increasingly characterized both developed and emerging markets since 1980. Such liberalization has often started in the banking sector (see **Table V 1**), where governments gradually or definitively removed interest rate ceilings on deposits, decreased barriers to foreign entry and increased branching, lowered mandatory reserve requirements, reduced interference in credit allocation, and privatized numerous state-owned financial intermediaries. Many governments also developed or reformed local capital markets, and have actively promoted the entrance of foreign participants. Additionally, the adoption of new exchange rate regimes that allow for some or total freedom of rate movements has also broadly characterized financial markets in many countries during this time period.

Financial market liberalization has, in turn, induced a proliferation of new financial instruments like forwards, futures, options, indexes and swaps. While some derivatives contracts have been traded on organized exchanges for well over a century in countries like the United States, Norway and Canada, the widespread trading of such contracts involving local currencies or commodities has been a rather sudden experience for many emerging economies (see **Tables V 2, V 3, and V 4**). It is therefore not surprising that the rapid introduction of these complex financial innovations has been regarded with some trepidation by many emerging market financial regulatory agencies.

This section of the report will address these concerns as they relate to the effect of financial sector liberalization and innovation on monetary aggregates, and thus the effectiveness of central bank policy that targets these aggregates. First, the effect of general financial liberalization on monetary aggregates will be recounted for Indonesia and Paraguay. Second, a study of financial innovations involving the Greek drachma and its implications for monetary policy will be summarized. Next, important research by a U.S. Federal Reserve economist will be used to comment on general trends in the speed of adjustment of money demand after the introduction of financial innovations in emerging markets. Finally, a conclusion will pull together general trends in financial innovations and their effect on monetary aggregates in emerging markets.

## Financial liberalization and effects on monetary aggregates

### 1) Indonesia<sup>37</sup>

Financial deregulation in Indonesia actually began in 1967, but was not fully implemented until 1983. In 1983, the government instituted the removal of interest rate controls on state banks and moved from direct credit extension to the use of indirect monetary instruments for the implementation of monetary policy. In 1988, with a second major deregulation package, the government was able to increase the mobilization of funds, increase the efficiency of financial intermediaries (primarily through improving operating conditions and opportunities for foreign financial intermediaries), and improve the effectiveness of monetary policy (through the unification and standardization of reserve requirements).

Around this time the Government also initiated significant foreign exchange and capital market deregulation. With respect to the former, in 1982 the government had already stricken the requirement that foreign exchange earnings be surrendered to Bank Indonesia. By 1989, the Foreign Exchange Bourse was eliminated, and the exchange rate determined by the central bank was no longer compulsory but rather indicative. The government also removed ceilings on a bank's foreign borrowings. These and other revisions to the foreign exchange mechanism permitted the central bank to intervene by buying and selling in the foreign exchange market.

In 1987, the government relaxed requirements for the issuance of securities at the stock exchange. A parallel stock exchange for firms that couldn't meet the requirements and open to foreign investors was also established. In 1988, a private stock exchange and a stock exchange outside Jakarta were also introduced, and the expansion of marketable securities trade at the Jakarta Stock Exchange was promoted. In addition, foreign investors were permitted to participate in the ownership of a joint venture securities company and a finance company.

Three new laws, the New Banking Act, the Insurance Act, and the Pension Fund Act, were enacted in 1992. The first two permitted foreign non-majority ownership in commercial banks

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<sup>37</sup> Based on information from **Financial Sector Reforms, Economic Growth and Stability, Experiences in Selected Asian and Latin American Countries**, Shakil Faruqi, ed., Binhadi (Managing Director, Bank Indonesia), pgs. 81-101. The World Bank, 1994.

and insurance companies and the issuance of shares by state-owned institutions. The third law made available two types of pension funds, manageable by banks.

These reforms and others had enormous macroeconomic implications, including greatly increased GDP growth. However, returning to the topic of concern of this report, the reforms also significantly impacted monetary aggregates. In 1989, both M1 and M2 increased by 40 percent. In 1990, M1 grew at 18 percent while M2 continued its astonishing pace of growth at 44 percent. With the central bank tightening monetary policy due to an increase in inflation from 5.9 to 9.5 percent over the period, money growth slowed but continued to be significantly positive, with M1 and M2 growth at 10 percent in 1991, and M1 growth at 9.3 percent and M2 growth at 20 percent in 1992.

## 2) Paraguay<sup>38</sup>

Paraguay suffered tremendous macroeconomic instability during the 1980s, culminating in internal collapse and the depletion of all international foreign exchange reserves in 1989. Dramatic financial reform efforts, supported by the IMF and the World Bank, were enacted between 1989 and 1992. These reforms covered four broad areas: 1) External liberalization, involving foreign exchange, current and capital accounts; 2) Internal liberalization, covering interest rate and credit allocation; 3) Monetary management; and 4) Financial supervision.

Specific reforms under this program were many. In 1989, a free-floating exchange regime was established (although public sector transactions in foreign currencies were still performed by the foreign exchange desk of the central bank). External tariffs were fixed to a weighted average of 8%, and reserve requirements on dollar deposits were reduced. In 1990, all banks were permitted to mobilize external funds and provide foreign currency loans to exporting firms. Between 1989 and 1990, interest rates on all deposits except central bank rediscount operations were liberalized. Credit interest rate ceilings and minimum portfolio requirements were also predominantly eliminated. Banks were also authorized to issue CDs at market rates, although the funds were still necessarily channeled to the agricultural sector (a requirement eliminated in

October 1990) Significant reform in monetary management and financial supervision were also enacted

Monetary aggregates behave as we would expect during a period of financial liberalization. M1, which includes the current account, as a percentage of GDP grew from 7.9% in 1988 to 8.7% in 1992. The same measure of M2, which includes all banking savings deposits in local currency, increased from 12% to 14.4% during the same period. M3, which in addition to M2 includes bank savings in foreign currency, increased from 14.5% of GDP to 22% of GDP between 1988 and 1992, primarily because foreign currency deposits increased during the period from 1.8% to 7.6%.

### **Financial innovations and effects on monetary aggregates**

#### Innovations Involving the Greek Drachma

More to the point of this report, the introduction of financial innovations can also exert a significant influence over monetary aggregates. A 1997 IMF working paper details the characteristics of these types of instruments involving the Greek drachma<sup>39</sup>. The study covers the evolution of local and international capital markets over the course of the past decade, and offers suggestions on how these developments may affect monetary aggregates.

Prior to the early 1980s, only a few hedging instruments – such as forward contracts – were used, and very few exchanges for trading these instruments existed outside the United States. In the early and mid-1980s, these innovations became enormously popular in Europe and other areas of the world, but largely bypassed Greece through 1990. The authors detail several factors that have driven financial innovation in Greece during the past few years, including increased volatility in money, capital and foreign exchange markets, disintermediation, new technology, increased competition, and deregulation.

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<sup>38</sup> Based on information from **Financial Sector Reforms, Economic Growth and Stability, Experiences in Selected Asian and Latin American Countries**, Shakil Faruqi, ed., Reinaldo Penner, pgs. 153-177. The World Bank, 1994.

Greek capital markets were liberalized in the early 1990s, and market volatility coupled with this development led to the demand for new financial instruments to manage risk, especially through cross-currency derivatives. Deregulation in the banking industry led to increased competition and disintermediation, and institutional investors began to demand hedging instruments to manage risk. Key new legislation also set the standards for the development of the mutual fund and closed-end fund industries. In addition, financial innovation was greatly encouraged by Greece's adoption of European Community legislation, which further liberalized the Greek financial system and made it more interconnected with European and indeed global markets. By 1996, Greece's Capital Markets Committee approved the legislative framework for the establishment of an organized exchange for derivative products in Athens.

"In the process of internationalization of the local market, the volume of equity issuance increased rapidly as local equity issues offered the prospect of higher returns and investors were willing to tolerate varying degrees of risk. At the same time, trading activity increased, intermediation became more effective, while the growing need for a risk transfer mechanism spurred the development of equity- and currency- hedging instruments. The domestic mutual fund industry also rapidly took off and with the subsequent disintermediation, domestic financial institutions started offering OTC foreign exchange options and participated in new product design, copying mostly the innovation pattern of the more advanced European and U.S. capital markets. Participation in coupon stripping schemes and government paper restructuring by local banks, foreign exchange swaps, and tax arbitrage have already become products available to even medium-size investors. These innovations along with plans by the National Bank of Greece – the country's biggest commercial bank – to have 24-hour dealing rooms around the world, are also expected to enhance the internationalization of the Greek drachma."<sup>40</sup>

It is beyond the scope of this report to describe in detail the step by step development of financial innovations involving the Greek drachma since their beginning in 1993, the paper is carefully constructed, providing a detailed model that is highly useful. However, the authors do discuss the implications of the development of these instruments for the conduct of monetary policy, and

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<sup>39</sup> Based on IMF Working Paper WP/97/14, **Financial Innovations Involving the Greek Drachma**, Michael Papaioannou and E.K. Gatzonas, January 1997

<sup>40</sup> Papaioannou and Gatzonas (1997), p. 6

it is these implications, similar to those addressed previously in this report as they relate to the Philippines, which warrant more space in this report

The authors claim that existing Greek accounting and disclosure systems and available data do not allow an empirical analysis of monetary policy implications. They draw four general implications concerning the effects of derivative instruments: 1) Transmission mechanism and effectiveness of monetary instruments, 2) Measurement of monetary aggregates, 3) Additional constraints in the conduct of monetary policy, and 4) Systematic (financial) risk<sup>41</sup>

- 1) Monetary relations may become unstable due to the possible distortion of monetary aggregates' measurement. In addition, the extent of changes necessary in monetary measures may be much greater in order for a given policy to be effective (particularly true when interest rate movements necessitate changes beyond interest rate levels that are hedged)
- 2) The increased use of derivatives affects the traditional measurement of monetary aggregates. The traditional measurement of M1 and M2 may not be indicative of money supply developments. The authors suggest monitoring broader measures of money supply, like M3 and M4, or abandoning monetary targets for interest or inflation rate targets<sup>42</sup>
- 3) Monetary policy in a country with widespread derivatives use will affect undisclosed off-balance sheet items of financial entities, perhaps significantly altering risk exposures of end-users and financial institution suppliers of these instruments
- 4) The interdependence of risks from a broad financial failure may be enhanced by the use of derivatives<sup>43</sup>

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<sup>41</sup> Papaioannou and Gatzonas (1997), p. 39

<sup>42</sup> See also IMF Working Paper WP/98/39, **Preliminary Consideration of an Inflation Targeting Framework for the Philippines**, Guy Debelle and Cheng Hoon Lim, March 1998 for discussion of the advantage of favoring alternatives to money supply targeting in the case of the Philippines

<sup>43</sup> See also IMF Working Paper WP/98/83, **Financial Liberalization and Financial Fragility**, Asli Demirguc-Kunt and Enrica Detragiache, June 1998, for an empirical analysis of how financial liberalization may increase the likelihood of bank crises

## **Empirical Studies**

While the IMF paper previously summarized is useful in its detailed description of financial innovations involving a particular currency and in its assessment of implications for monetary policy, it unfortunately does not provide an empirical analysis of how financial innovation has affected the measurement of monetary aggregates. This void in placing Barents' empirical work on this project in the context of similar research is filled by a paper by Martina Copelman in one of the Federal Reserve System's *International Finance Discussion Papers* <sup>44</sup>

This paper uses cointegration techniques to study the effects of financial innovation on the demand for real balances in Bolivia, Israel and Venezuela. The results of her analyses show that financial innovation can account for the instability of money demand in these countries. She comes to two broad conclusions within the context of this model: 1) The long run demand for real balances shifted down after the introduction of financial innovations, and 2) The speed of adjustment for money demand increases following financial innovation. The remainder of this section reviews her findings for the three countries in the study.

### **1) Bolivia**

In August of 1985, the Government of Bolivia introduced a sweeping stabilization and financial market liberalization program, particularly in response to pressures induced by hyperinflation. Interest rate ceilings and capital market restrictions were eliminated. Banks were permitted to operate in international trade and capital transactions without restrictions. Depositors were allowed to open dollar and dollar-indexed accounts and banks could make dollar and dollar-indexed loans (dollar accounts had lower reserve requirements).

This liberalization affected an expansion of the definition of M2, of which dollar deposits formed the principal stake. Dollar and dollar indexed deposits rose from \$28 million to \$270 million in 18 months, and represented about 78% of total commercial bank deposits in 1989. Even after hyperinflation ended, the demand for real balances never returned to previous levels, which

Copelman cites as further evidence that financial innovation caused a decline in real balances. Real M1 peaked at Bol2 5 billion in late 1980, fell to a little over Bol1500 million in mid-1985, and partially recovered to about Bol1 7 billion in late 1991.

## 2 ) Israel

Israel introduced a very successful stabilization program in July 1985. However, capital markets reforms were not initiated until 1987, and it was not until this time that there was a noticeable drop in real balances. Real balances in the late 1980s were lower than those in the early 1970s, even though inflation was the same and GDP was much higher.

The Israeli financial liberalization unified and reduced mandatory liquidity ratios. Non-financial firms were also given full freedom to issue bonds and limitations on foreign exchange linked credit were relaxed. These reforms led to a narrowing of interest rate gaps in the capital market and a decrease in the average rate on government bonds. New financial instruments have become a big part of Israel's money market, which has led to a decline in desired money holdings.

## 3 ) Venezuela

In 1989, demand for real balances fell in Venezuela from 7 trillion to under 4 trillion, coinciding with a major financial liberalization program. The exchange rate was allowed to float, and all capital restrictions and nominal interest rate restrictions were removed. New types of financial instruments, such as savings and time deposits and zero-coupon government bonds, were introduced (the latter accounted for 55.7% of total flow in the gross flow of transactions in the stock market). In addition, reserve requirements for demand deposits were unified.

These reforms led to nominal interest rates of about 30% and to a strong recomposition of portfolios by agents in favor of highly liquid assets with very high returns. Copelman

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<sup>44</sup> Board of Governors of the Federal Reserve System, International Finance Discussion Paper Number 567, **Financial Innovation and the Speed of Adjustment of Money Demand: Evidence from Bolivia, Israel and Venezuela**, Martina Copelman, October 1996.

emphasizes that this is a feature of financial market reforms in general, and that new instruments create irreversible effects on the demand for money

Copelman performs a series of sophisticated computations, and, using data from Indonesia, Israel and Venezuela concludes that financial innovation can increase the speed of adjustment of money demand to its determinants, and can lead to instability typically found in other money demand studies. Further, through the use of cointegration techniques, she has been able to determine a long run money demand function for each country in the study. These long-run demand functions shifted down after the introduction of financial innovations, and in the short run, financial innovation increased the speed with which people adjust their actual money holdings to their desired money holdings

## VI Findings and Recommendations

Our findings are generally supportive both of the utility of indirect monetary policy and of the expansion of financial market innovations such as financial market derivatives. We have found that bank supervision in the Philippines is generally adept and executed through skilled examiners. We also conclude that there are some crucial improvements in the regulatory structure in order to ensure the continuation of socially beneficial development. In brief, our findings can be summarized in the following points:

- ◆ The impact of financial market derivatives has been primarily on the broad monetary aggregates, M3 and M4, through the expansion of deposit substitutes.
- ◆ A number of regulatory barriers remain to the broader use of derivative instruments. Also, improvements in the government securities market would be helpful to the derivatives market as well as to capital markets in the Philippines.
- ◆ There has been relatively slight use of financial market derivatives—by type and by volume—thus far in the Philippine market.
- ◆ There is need for substantial regulatory improvements that will broaden the scope of derivatives usage. Better regulation includes both changes in the rules and laws and better supervision through more trained staff and a curtailment of the secrecy regulation.
- ◆ There should be a study of the effects of bank secrecy on BSP bank regulation. How is it impacting the efficiency and effectiveness of regulation? How is it effecting money flows in and out of the banking system? Is it a factor in bank failures or in creating troubled institutions? Such a study would be supportive of efforts to change the secrecy law.
- ◆ The Treasury markets, primary and secondary, in the Philippines both need further development—in particular, revised regulation that will make repos economical. In addition, the regulations need to be changed to allow short sales.
- ◆ The effective regulation of commercial banks—including the execution of prompt closure or restriction of troubled banks—is hampered by the individual liability of PSB regulators for their official acts. This liability hinders the rigorous (and timely) pursuit of the public interest in bank regulation and should be shifted from the individual to the PBS.

- ◆ The recently strengthened prompt corrective action policy for resolving troubled banks is a big step in the right direction but will need further strengthening if experience in other countries is indicative
- ◆ Bank regulation in general, and derivatives regulation in particular, needs to be enhanced by reducing or eliminating the adverse effects of bank secrecy
- ◆ Financial market innovations, including the introduction of financial market derivatives have not affected the feasibility of a quantitatively based monetary policy
- ◆ In the exercise of indirect monetary policy, the narrow monetary aggregates—the monetary base and M1—have a closer relation to the targets of monetary policy inflation than do the broader monetary aggregates—M3 and M4
- ◆ Since derivatives have a greater impact on the broad monetary aggregates, the closer linkage of inflation with the narrower aggregates is likely to be maintained as derivative use is expanded in scope and volume
- ◆ The range of derivatives and their financial benefits could be reflected in social benefits through the greater specialization of risk-bearing

There is empirical evidence from several emerging markets that derivatives do not increase volatility in asset markets—see Jochum and Kodres (1988). In this study, we report that derivatives have neither diminished the controllability of money nor its connection with inflation. Conversely, it is clear that derivatives do provide a variety of benefits to market participants through enabling greater specialization, improved pricing and, as a result, more efficient financial markets. Consequently, the question for regulators is not whether to encourage the development of financial market derivatives but rather how best to regulate them, document and enforce their rules in the markets of their underlying assets, and support the markets in which they are traded. In short, the growth of derivatives use and their scope will benefit financial markets in the Philippines without impeding the exercise of monetary policy based on intermediate monetary targets.

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**FINANCIAL MARKET DEVELOPMENT AND ITS IMPLICATIONS FOR  
MONETARY POLICY IN THE PHILIPPINES**

**TABLES, FIGURES AND ANNEXES**

**TABLE I 1 COMPOSITION OF DEPOSITS OF MONEY BANKS**

Annual Data 1980 - Latest available

In Million Pesos

Y E A R	Demand Deposits	Savings Deposits	Time Deposits	Total	R a t i o		
					Demand Dep / Tot	Savings Dep / Tot	Time Dep / Total
1980	12 362 9	19 529 9	13 364 4	45 257 2	0 27	0 43	0 30
1981	11 898 5	24 198 3	17 916 5	54 013 3	0 22	0 45	0 33
1982	10 815 2	28 919 3	26 288 5	66 023 0	0 16	0 44	0 40
1983	12 984 0	34 457 0	30 091 0	77 532 0	0 17	0 44	0 39
1984	11 973 0	38 530 0	38 902 0	89 405 0	0 13	0 43	0 44
1985	11 865 0	47 107 0	42 923 0	101 895 0	0 12	0 46	0 42
1986	13 430 0	62 620 0	34 160 0	110 210 0	0 12	0 57	0 31
1987	17 044 0	72 105 0	33 750 0	122 899 0	0 14	0 59	0 27
1988	19 080 0	92 253 0	43 950 0	155 283 0	0 12	0 59	0 28
1989	25 707 0	118 377 0	54 184 0	198 268 0	0 13	0 60	0 27
1990	27 091 0	159 193 0	49 102 0	235 386 0	0 12	0 68	0 21
1991	31 980 0	186 909 0	55 774 0	274 663 0	0 12	0 68	0 20
1992	37 794 0	217 725 0	52 056 0	307 575 0	0 12	0 71	0 17
1993	49 794 0	290 932 0	50 907 0	391 633 0	0 13	0 74	0 13
1994	56 277 0	410 699 0	40 353 0	507 329 0	0 11	0 81	0 08
1995	74 039 0	527 977 0	42 283 0	644 299 0	0 11	0 82	0 07
1996	99 003 0	609 239 0	43 567 0	751 809 0	0 13	0 81	0 06
1997	114 675 0	751 270 0	44 361 0	910 306 0	0 13	0 83	0 05
Mar-98	115 386 0	759 177 0	44 212 0	918 775 0	0 13	0 83	0 05
Apr 98	114 525 0	750 204 0	43 545 0	908 274 0	0 13	0 83	0 05

Source: Bangko Sentral ng Pilipinas

TABLE I 2 TRADITIONAL DEPOSITS DEPOSIT SUBSTITUTES M1 M2 AND M3

Annual Data 1970 Latest available

In Billion Pesos

YEAR	Traditional Deposits	% of Tot	Deposit Substitutes	% of Tot.	Total	M1	M2	M3	M3/M2	M3/M1
1970	6 98	100		0	6 98	4 7	9 39	9 39	1	2 00
1971	7 84	100		0	7 84	5 18	10 49	10 49	1	2 03
1972	8 43	100		0	8 43	6 47	11 87	11 87	1	1 83
1973	10 56	72 33	4 04	27 67	14 60	7 27	14 02	18 06	1 29	2 48
1974	12 46	62 52	7 47	37 48	19 93	9 01	16 77	24 24	1 45	2 69
1975	14 51	60 11	9 63	39 89	24 14	10 31	19 25	28 89	1 50	2 80
1976	19 37	64 05	10 87	35 95	30 24	12 07	25 02	35 9	1 43	2 97
1977	25 80	69 35	11 4	30 65	37 20	14 94	32 53	43 93	1 35	2 94
1978	32 21	73 69	11 5	26 31	43 71	16 95	40 35	51 84	1 28	3 06
1979	36 23	75 2	11 95	24 8	48 18	18 84	45 41	57 36	1 26	3 04
1980	45 25	78 53	12 37	21 47	57 62	22 54	55 43	67 80	1 22	3 01
1981	54 01	76 65	16 45	23 35	70 46	23 52	65 63	82 09	1 25	3 49
1982	66 03	79 94	16 57	20 06	82 60	23 50	78 71	95 27	1 21	4 05
1983	77 53	81 92	17 11	18 08	94 64	32 57	97 12	114 23	1 18	3 51
1984	89 40	88 8	11 28	11 2	100 68	33 74	111 17	122 45	1 10	3 63
1985	101 90	92 21	8 61	7 79	110 51	35 89	125 92	134 53	1 07	3 75
1986	110 25	95 79	4 85	4 21	115 10	42 69	139 51	144 37	1 03	3 38
1987	122 94	97 19	3 55	2 81	126 49	52 42	158 32	161 87	1 02	3 09
1988	155 28	98 42	2 49	1 58	157 77	59 72	195 92	198 41	1 01	3 32
1989	198 27	98 59	2 83	1 41	201 10	78 53	251 09	253 92	1 01	3 23
1990	235 39	98 65	3 23	1 35	238 62	89 01	297 31	300 54	1 01	3 38
1991	274 66	98 91	3 02	1 09	277 68	101 37	344 05	347 08	1 01	3 42
1992	307 57	98 87	3 51	1 13	311 08	112 09	381 87	385 39	1 01	3 44
1993	391 32	98 84	4 61	1 16	395 93	133 88	475 41	480 02	1 01	3 59
1994	507 33	99 1	4 61	0 9	511 94	151 95	603 00	607 61	1 01	4 00
1995	644 30	99 04	6 24	0 96	650 54	184 93	755 19	761 43	1 01	4 12
1996	751 81	99 12	6 64	0 88	758 45	221 96	874 77	881 40	1 01	3 97
1997	910 31	98 69	12 07	1 31	922 37	258 32	1 053 95	1 066 01	1 01	4 13
Apr 98	908 28	98 74	11 59	1 26	919 87	247 46	1 041 20	1 052 79	1 01	4 25

Note

Traditional Deposits and Deposit Substitutes of Deposit Money Banks

Source: Bangko Sentral ng Pilipinas

**TABLE I 3a SELECTED ACCOUNTABILITIES OF COMMERCIAL BANKS**

1988 - Latest available

In Billion Pesos

Y E A R	T O F A Others	Investment Management Accounts	Common Trust Funds	FCDU / EFCDU Trust Accountabilities	T o t a l	% of M3
1988	14 06	20 49	14 46	-	49 01	24 70
1989	21 47	27 41	15 81	-	64 69	25 48
1990	7 53	27 81	22 25	-	57 59	19 16
1991	6 50	27 22	70 54	0 30	104 556	30 12
1992	10 97	28 22	89 77	0 80	129 764	33 67
1993	17 04	30 61	70 44	3 58	121 67	25 35
1994	21 92	33 11	70 02	5 92	130 97	21 55
1995	32 36	40 23	71 13	12 90	156 62	20 57
1996	55 56	43 67	69 64	15 04	183 91	20 87
1997	41 01	52 17	77 67	23 99	194 84	18 28
Mar-98	45 54	53 97	80 45	23 31	203 27	19 22

Source Bangko Sentral ng Pilipinas

Filename Acc KBs

TABLE 13b TRUST AND FUND MANAGEMENT OPERATIONS

## ASSETS OF COMMERCIAL BANKS

End of the Period

In Million Pesos

ITEM	1988	1989	1990	1991	1992	1993	1994	1995	1996*	1997*	Mar-98
Cash		981 2						07	00	27	01
Checks and Other Cash Items		37		50	152	30	13	707	56	50	04
Deposits in Banks	5 165 0	7 234 2	6 505 0	9 181 2	5 267 6	11 801 4	18 814 7	21 826 1	29 383 2	36 565 3	42 433 2
Investments in Government Securities	11 766 0	12 315 3	4 015 2	41 990 7		49 828 4	30 576 1	34 547 6	38 830 1	38 869 8	44 466 1
Investments in Other Securities and Debt Instruments	7 236 0	8 119 6	15 406 1	3 976 0	77 184 0	8 741 2	8 176 3	11 298 3	22 597 7	60 676 8	62 245 9
Loans and Discounts	20 545 0	26 051 7	31 730 5	51 661 3	51 602 6	56 032 2	80 039 3	97 968 0	112 515 5	108 623 5	107 785 6
Investments in Shares of Stocks	1 958 0	4 435 1	4 283 3	10 480 0	14 652 9	22 869 1	30 359 4	36 550 5	46 148 8	51 329 3	54 384 6
a Short Term Equity Investments	1 914 0	2 946 3	3 194 9	8 189 9	8 653 6	16 012 5	20 839 1	22 331 2	29 633 9	30 795 0	32 081 5
b Long Term Equity Investments	44 0	1 488 8	1 088 4	2 290 1	5 999 4	6 856 6	9 520 3	14 219 3	16 514 9	20 534 3	22 303 1
Investments in Real Estate	547 0	971 3	1 584 3	1 336 8	1 362 2	1 700 4	2 435 8	4 331 4	5 404 8	7 059 1	7 027 7
Investments in Common Trust Fund				3 881 3	5 383 4	6 883 8	9 285 2	12 330 3	9 784 6	9 039 1	11 447 3
Real Properties Administered	26 0	57 7	10 7	32 5	18 9	16 6	16 7	16 3	19 5	16 9	17 1
Real and Other Properties Acquired in Settlement of Loans	15 0	6 1	29 0	91 0	102 3	75 4	152 5	57 9	72 5	208 8	219 1
Miscellaneous Receivables				2 634 8	3 826 3	3 321 4	3 088 5	3 868 5	4 964 5	7 024 0	7 464 1
Miscellaneous Assets	3 941 0	7 554 0	7 972 0	4 717 9	3 251 1	1 408 2	1 043 8	4 383 4	24 387 3	46 512 7	49 684 5
Foreign Currency Notes and Coins FCDU EFCDU				89 7		276 6	2 135 9	1 039 7	975 5	413 6	313 6
Foreign Currency Assets FCDU EFCDU				248 6	209 5	162 7	166 4	705 7	1 498 0	394 0	1 623 0
CTF Revaluation Account				(49 6)	390 3	314 2	104 5	(148 0)	(16 6)	(168 3)	(144 1)
Allowance for Probable Losses				336 5	(27 0)	174 3	995 7	1 415 3	1 067 5	4 385 2	4 306 0
Others						4 138 3	4 276 6	4 487 8	4 276 1	5 090 5	4 390 3
<b>TOTAL</b>	<b>51,199 0</b>	<b>67,729 9</b>	<b>71,636 1</b>	<b>129,940 7</b>	<b>163,239 3</b>	<b>167,398 6</b>	<b>189,677 3</b>	<b>231,919 6</b>	<b>299,779 6</b>	<b>367,277 6</b>	<b>389,052 5</b>

\* With SGBs

Source: Bangko Sentral ng Pilipinas

Filename: Assets\_KB5

TABLE 14 DEPOSITS AT FOREIGN CURRENCY DEPOSIT UNIT SYSTEM

1986 Latest available

Y E A R	Total Resources in \$ M	Total Deposits in \$ M	Deposits of Residents in \$ M	Exchange Rate Per US \$	Deposits of Residents in P M	Deposits of Residents in P M (Fixed Exchange Rate=P20 39/US\$)	M3 in P M	FCDU / M3	FCDU / M3 ( Fixed Exchange Rate )
1986	2 714	1 080	829	20 39	16,903 31	16,903 31	144 370	0 12	0 12
1987	2 754	1,173	987	20 57	20,302 59	20 124 93	161 870	0 13	0 12
1988	3,344	1,482	1,334	21 09	28,134 06	27,200 26	198,410	0 14	0 14
1989	3,656	2,053	1 912	21 74	41 566 88	38 985 68	253 920	0 16	0 15
1990	4 279	2 650	2 312	24 31	56 204 72	47 141 68	300,540	0 19	0 16
1991	4 512	3 160	2,963	27 48	81 423 24	60 415 57	347,080	0 23	0 17
1992	5 780	4 372	4 117	25 51	105 024 67	83 945 63	385 390	0 27	0 22
1993	7 108	5 614	5 298	27 12	143,681 76	108,026 22	480 020	0 30	0 23
1994	9 765	7 716	6 920	26 42	182 826 40	141 098 80	607 610	0 30	0 23
1995	12 329	9 116	8 254	25 71	212 210 34	168 299 06	761 430	0 28	0 22
1996	19 782	14 524	12 619	26 22	330 870 18	257 301 41	881 400	0 38	0 29
1997	22 804	14 537	11 476	29 47	338 197 72	233 995 64	1 066 010	0 32	0 22
Mar 98	20 857	14 192	11 246	40 69	457 599 74	229 305 94	1 057 415	0 43	0 22

Source Bangko Sentral ng Pilipinas

Filename FCDU Local1

TABLE I 5a TOTAL ISSUANCES (VOLUME) OF GOVERNMENT SECURITIES										
Annual Data 1990 Latest available										
In Billion Pesos										
Government Securities	1990	1991	1992	1993	1994	1995	1996	1997	Jan	Jun 1998
1 CMB 35						2 000		8 300		2 000
42								7 200		5 713
63								1 422		2 506
2 91 day	136 518	129 779	150 282	115 959	115 988	81 258	61 500	58 340		25 005
3 182 day	116 863	108 623	143 580	112 988	125 358	82 563	82 983	63 440		20 380
4 364 day	97 970	78 609	140 210	114 477	104 545	85 936	118 782	86 249		19 888
5 FRTNs		7 800	23 800	64 800	36 300					
6 FXTBs										
2 yr					5 000	23 430	38 530	31 189		8 381
5 yr						21 000	19 680	7 500		5 000
7 - yr							19 585	5 537		1 887
10 yr							2 000	10 259		2 000
20 yr								2 000		
<b>TOTAL</b>	<b>351 351</b>	<b>324 811</b>	<b>457 872</b>	<b>408 224</b>	<b>387 191</b>	<b>296 187</b>	<b>343 060</b>	<b>281 436</b>		<b>92 760</b>

Source SDAD/PD/FMMAD/BTr

TABLE I 5b OUTSTANDING GOVERNMENT SECURITIES										
Annual Data 1990 - Latest available										
In Billion Pesos										
Government Securities	1990	1991	1992	1993	1994	1995	1996	1997	as of	Jun-98
1 CMB 35										-
42										-
63										-
tap								0 195		-
2 91 - day	33 381	36 776	34 842	21 575	11 257	21 580	11 741	16 265		25 420
tap								2 170		0 172
3 182 - day	53 382	54 412	72 012	49 997	57 050	48 307	35 715	25 940		40 061
tap								4 760		0 830
4 364 - day	105 826	79 634	140 260	114 857	104 545	88 751	118 797	86 249		71 702
tap								2 850		4 213
5 FRTNs										2 416
6 FXTBs										
2 - yr					5 000	28 993	76 623	85 768		60 312
5 - yr						30 000	62 507	69 839		53 180
7 - yr							37 703	45 775		26 799
10 - yr							9 616	25 608		14 259
tap										0 400
20 - yr								2 000		2 000
<b>TOTAL</b>	<b>192 589</b>	<b>170 822</b>	<b>247 114</b>	<b>186 429</b>	<b>177 852</b>	<b>217 631</b>	<b>352 702</b>	<b>367 419</b>		<b>301 764</b>

Source SDAD/PD/FMMAD/BTr

<b>TABLE I 6a HISTORICAL VOLUME OF CPs SOLD</b>						
<b>In Million Pesos</b>						
<b>Y E A R</b>	<b>T o t a l</b>	<b>% Inc / (Dec)</b>	<b>Long - term</b>	<b>% to Total</b>	<b>Short - term</b>	<b>% to Total</b>
<b>1990</b>	15 878 9	-	925 0	5 8	14,953 9	94 2
<b>1991</b>	26 869 6	69 0	2 925 0	10 9	23,944 6	89 1
<b>1992</b>	20,589 9	23 0	8 402 5	40 8	12 187 4	59 2
<b>1993</b>	12 992 3	-36 0	900 0	6 9	12 092 3	93 1
<b>1994</b>	24 255 9	87 0	6 200 0	25 5	18,055 9	74 5
<b>1995</b>	30,880 9	27 0	12,064 7	39 1	18 816 2	60 9
<b>1996</b>	30 114 8	-2 0	15 550 3	51 6	14 564 5	48 4
<b>1997</b>	24 840 5	-23 0	10 900 0	45 3	13,184 5	54 7

<b>TABLE I 6b OUTSTANDING YEAR - END BALANCES OF CPs</b>						
<b>In Million Pesos</b>						
<b>Y E A R</b>	<b>T o t a l</b>	<b>% Inc / (Dec)</b>	<b>Long - term</b>	<b>% to Total</b>	<b>Short - term</b>	<b>% to Total</b>
<b>1990</b>	6 782 0	-	3 675 0	54 2	3107	45 8
<b>1991</b>	10 589 0	56 1	7 615 0	71 9	2974	39 1
<b>1992</b>	9 371 0	-11 5	6 828 0	72 9	2543	37 2
<b>1993</b>	12 491 0	33 3	9 717 0	77 8	2774	28 5
<b>1994</b>	26 072 0	108 7	22 165 0	85 0	3907	17 6
<b>1995</b>	28 896 0	10 8	24 977 0	86 4	3919	15 7
<b>1996</b>	46 786 0	61 9	40 856 0	87 3	5930	14 5
<b>1997</b>	54 979 0	14 9	50 239 0	91 4	4740	8 6

Source Securities and Exchange Commission

**TABLE I 7a PHILIPPINE STOCK MARKET PROFILE**

Annual Data 1980 - Latest available

In Million Pesos

Y E A R	PSE Value Turnover	Market Capitalization	GNP (Nominal)	Market Capitalization as % to GNP	No Of Newly Listed Stocks	Capital Raised
1980	4 700 0	26 432 0	243 270 0	10 87	4	220
1981	1 300 0	14 255 0	280 543 0	5 08	4	690
1982	1 200 0	18 172 0	313 544 0	5 80	8	1 292
1983	5 400 0	19 445 0	363 268 0	5 35	7	946
1984	2 100 0	16 846 0	508 485 0	3 31	4	315
1985	2 066 0	12 741 0	556 074 0	2 29	4	494
1986	11 470 0	41 214 0	596 276 0	6 91	9	558
1987	31 423 0	61 108 0	670 826 0	9 11	11	1 707
1988	18 251 0	88 591 0	791 822 0	11 19	7	2 437
1989	49 919 0	261 022 0	914 126 0	28 55	8	4 827
1990	28 531 0	161 219 0	1 078 408 0	14 95	11	18 537
1991	39 713 0	297 743 0	1 262 487 0	23 58	11	25 991
1992	76 627 0	391 231 0	1 385 562 0	28 24	12	22 143
1993	180 690 0	1 088 820 0	1 500 287 0	72 57	11	36 252
1994	362 268 0	1 386 464 0	1 737 315 0	79 80	25	149 381
1995	378 982 0	1 545 728 0	1 970 519 0	78 44	16	102 241
1996	668 817 0	2 121 059 0	2 282 917 9	92 91	13	122 523
1997	568 363 0	1 251 288 0	2 526 891 0	49 52	6	100 703
Aug 1998	222 776 0	945 499 0			3	1 016

Source Research Department Philippine Stock Exchange

**TABLE I 7b PHILIPPINE STOCK MARKET TRANSACTIONS**

Monthly Data 1996 - Latest available

Volume in Million Shares, Value in Million Pesos

YEAR	TOTAL		Composite Index 1
	Volume	Value	
<b>1996</b>			
Jan	68,020 4	52 751 4	2,885 8
Feb	103,296 7	45 353 6	2,882 6
Mar	212,448 7	40 153 3	2,900 8
Apr	116,238 1	54 036 6	2,938 0
May	184 301 4	78 422 8	3,250 3
Jun	327,614 8	58 888 5	3,275 3
Jul	201,796 4	62 985 8	3,028 3
Aug	142 465 2	46 905 6	3,220 7
Sept	322,416 0	45 772 3	3,169 8
Oct	268 575 2	69 232 5	2 964 0
Nov	223 716 9	65 158 1	3,090 2
Dec	102,945 6	49 205 9	3,170 6
<b>1997</b>			
Jan	356 811 4	76 638 3	3,421 9
Feb	572,805 1	72 878 5	3,315 3
Mar	277,492 2	58 682 4	3 223 0
Apr	141 726 3	53 337 4	2,648 2
May	112,641 8	41 405 1	2,809 5
Jun	122,235 8	44 705 1	2,809 2
Jul	115 992 9	49 044 7	2 616 4
Aug	66,441 9	40 661 7	2 021 5
Sept	71,854 4	50 427 1	2,057 4
Oct	31,314 0	43 369 5	1,818 1
Nov	31,125 8	26 867 3	1,771 9
Dec	23,549 9	28 155 6	1,869 2
<b>1998</b>			
Jan	27 489 4	29 612 0	1,948 0
Feb	54,457 2	48 876 5	2 266 3
Mar	39,421 1	51 655 3	2 238 4
Apr	26 603 9	30 972 3	2,181 3
May	9,999 5	19 331 7	2,011 5
Jun	10,419 4	19 451 8	1,760 1

1 Average Composite index of Makati and Manila Stock Exchanges from 1990 to February 1994 and unified composite index starting March 1994

Source Philippine Stock Exchange

**TABLE I 8 TOTAL TRADITIONAL DEPOSITS OF THRIFT BANKS AND M3**  
**1 9 8 0 - Latest available**  
**In Billion Pesos**

Y E A R	Deposits	M3	Deposits / M3
1980	7 26	67 80	0 11
1981	7 04	82 09	0 09
1982	9 27	95 27	0 10
1983	11 18	114 23	0 10
1984	7 06	122 45	0 06
1985	10 50	134 53	0 08
1986	12 80	144 37	0 09
1987	14 88	161 87	0 09
1988	18 85	198 41	0 10
1989	24 71	253 92	0 10
1990	26 40	300 54	0 09
1991	33 47	347 08	0 10
1992	39 89	385 39	0 10
1993	49 40	480 02	0 10
1994	63 09	607 61	0 10
1995	88 68	761 43	0 12
1996	117 82	881 40	0 13
1997	128 82	1,066 01	0 12

Source Bangko Sentral ng Pilipinas

**TABLE I 9 STRUCTURE OF PAYMENTS SYSTEM IN THE PHILIPPINES**

Type of Instrument	Clearing	Settlement	Risk
1 Cash	Not needed	Payment is settlement	None
2 Non - Cash			
2 1 Checks	Local clearing house (Philippine Clearing House Corp )	Reciprocal balance	Insufficient balance
2 2 Electronic Payments			
2 2 1 Credit Cards	Deferred	Deferred	Loan default
2 2 2 Dedit Cards - A T M	Not needed	Reciprocal balance	None
2 2 3 Smart Cards	Not needed	Payment is settlement	None
2 2 4 Automatic Payroll Deposit	Not needed	Reciprocal balance	None

**TABLE I 10 PESO DEMAND DEPOSITS OF COMMERCIAL BANKS  
AND THEIR TURNOVER RATE**  
Annual Data 1985 - 1996  
In Million Pesos

<b>Y E A R</b>	<b>Total Debits</b>	<b>Ave Peso Demand Deposit</b>	<b>Turnover Rate</b>
1985	161,770 80	11,904 50	13 59
1986	201,615 40	12,633 00	15 96
1987	236,629 60	16,679 00	14 19
1988	315,858 80	18,859 00	16 75
1989	422,043 60	25,422 00	16 60
1990	560,323 90	27,263 50	20 55
1991	677,343 90	31,297 50	21 64
1992	744,796 00	37,510 00	19 86
1993	719,799 60	48,152 50	14 95
1994	1,288,759 80	55,835 00	23 08
1995	1,777,274 70	73,775 00	24 09
1996	2,877,278 80	97,445 00	29 53

Data - as of December of the year indicated  
Source Bangko Sentral ng Pilipinas

**TABLE I 11 COMMERCIAL BANKS' EXPOSURE TO CREDIT CARDS\***

<b>YEAR</b>	<b>P M</b>	<b>% Increase</b>	<b>Ratio to Total Loan Portfolio (in %)</b>
1994	2,445 00		0 37
1995	11,685 00	377 90	1 32
1996	18,165 00	55 50	1 43
1997	38,403 00	111 41	4 80

\* Includes subsidiaries of banks

Source: Bangko Sentral ng Pilipinas

**TABLE I 12 FINANCIAL INSTRUMENTS, PAYMENTS SYSTEM AND MONEY SUPPLY**

Components of Monetary Aggregates	Innovations Likely Affecting Monetary Aggregates	
	Financial Instrument	Payments System
1 Cash or currency in circulation (M1 M2 M3)	Interest - bearing checking account various savings deposits	Smart card ATM card POS - ATM BPS - ATM, APD
2 Demand Deposits (M1 M2 M3)	Dollar checking account "Combo" account various savings deposits	POS - ATM BPS - ATM APD
3 Savings Deposits (M2 M3)	Dollar savings account	
4 Time Deposits (M2 M3)	Trust accounts Securities Equity, Dollar time deposit account	
5 Deposit Substitute (M3)	Trust accounts, Securities Equity Dollar time deposit account	

**TABLE I 13 COMPONENTS OF M3 AND BASE MONEY**

Annual Data 1980 - Latest available

Ratio Distribution

Y E A R	R A T I O						
	Curr in Circ / Total Deposits	Currency in Circ / M3	Demand Dep / M3	Savings Dep / M3	Time Dep / M3	Dep Substi / M3	M3 / Base Money
1980	0 18	0 15	0 18	0 29	0 20	0 18	3 18
1981	0 16	0 14	0 14	0 29	0 22	0 20	3 44
1982	0 15	0 13	0 11	0 30	0 28	0 17	3 83
1983	0 21	0 17	0 11	0 30	0 26	0 15	3 27
1984	0 22	0 18	0 10	0 31	0 32	0 09	2 97
1985	0 22	0 18	0 09	0 35	0 32	0 06	3 13
1986	0 25	0 20	0 09	0 43	0 24	0 03	2 58
1987	0 28	0 22	0 11	0 45	0 21	0 02	2 61
1988	0 26	0 20	0 10	0 46	0 22	0 01	2 76
1989	0 26	0 21	0 10	0 47	0 21	0 01	2 62
1990	0 26	0 21	0 09	0 53	0 16	0 01	2 44
1991	0 25	0 20	0 09	0 54	0 16	0 01	2 46
1992	0 24	0 19	0 10	0 56	0 14	0 01	2 51
1993	0 21	0 18	0 10	0 61	0 11	0 01	2 73
1994	0 19	0 16	0 09	0 68	0 07	0 01	3 10
1995	0 17	0 15	0 10	0 69	0 06	0 01	3 32
1996	0 16	0 14	0 11	0 69	0 05	0 01	3 36
1997	0 16	0 13	0 11	0 70	0 04	0 01	3 50
Apr-98	0 14	0 13	0 11	0 71	0 04	0 01	3 69

Source: Bangko Sentral ng Pilipinas

**TABLE II - 1 LIST OF BANKS ISSUED DERIVATIVES LICENSE UNDER CIRCULAR 102**

Name of Bank	Type of License	Date
1 Citibank	Expanded	August 21 1996
2 HSBC	Expanded	October 16 1996
3 FEBTC	Expanded	December 18 1996
4 Bank of America	Expanded	December 18 1996
5 Solid Bank	Expanded	June 11 1997
6 Equitable Bank	Expanded	June 13 1997
7 Chase Manhattan	Expanded	June 25 1997
8 Deutsche Bank	Expanded	July 9 1997
9 Dev Bank of Singapore	Regular	July 23 1997
10 PCIB	Expanded	July 20 1997
11 ING Bank	Expanded	September 24 1997
12 Standard Chartered	Expanded	March 9 1998

**TABLE II - 2 OUTSTANDING DERIVATIVES CONTRACTS UNDER CIRCULAR 102**  
**As of May and June 1 9 9 8**

	M a y 1 9 9 8		J u n e 1 9 9 8	
	Resident	Non - Resident	Resident	Non - Resident
<b>R E G U L A R</b>	<b>5,759,682,338</b>	<b>2,219,280,021</b>	<b>5,899,168,769</b>	<b>2,201,747,609</b>
<b>FOREIGN CURRENCY</b>	<b>5,752,040,554</b>	<b>2,219,280,021</b>	<b>5,892,053,818</b>	<b>2,201,747,609</b>
<b>FORWARDS</b>	<b>3,584,957,520</b>	<b>1,364,240,334</b>	<b>3,564,756,217</b>	<b>1,296,053,462</b>
Trading	3 423 232 420	1 314 080 435	3 468 588 265	1 245 438 632
Hedging	161 725 100	50 159 899	96 167 952	50 614 830
Broker				
Agent	5 752 040 554			
<b>SWAPS</b>	<b>2,167,083,034</b>	<b>855,039,687</b>	<b>2,327,297,601</b>	<b>905,694,147</b>
Trading	1 448 556 362	684 985 149	1 623 132 152	709 998 456
Hedging	718 526 672	170 054 538	704 165 449	195 695 691
Broker				
Agent				
<b>OPTIONS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>FUTURES</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>OTHERS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				

TABLE II 2, continued

<b>INTEREST RATE</b>	<b>7,641,782</b>	<b>0 0</b>	<b>7,112,951</b>	<b>0 0</b>
<b>FORWARDS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>SWAPS</b>	<b>7,641,782</b>	<b>0 0</b>	<b>7,112,951</b>	<b>0 0</b>
Trading	3 808 112		3 544 581	
Hedging	3 833 670		3 568 370	
Broker				
Agent				
<b>OPTIONS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>FUTURES</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>OTHERS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				

**TABLE II 2, continued**

<b>F C D U</b>	<b>558,201,327</b>	<b>1,054,431,685</b>	<b>669,778,540</b>	<b>1,361,366,777</b>
<b>FOREIGN CURRENCY</b>	<b>556,811,577</b>	<b>828,561,735</b>	<b>668,388,790</b>	<b>1,111,098,827</b>
<b>FORWARDS</b>	<b>489,643,643</b>	<b>746,493,348</b>	<b>633,358,633</b>	<b>1,011,379,105</b>
Trading	422 012 171	681 689 494	589 653 097	970 518 921
Hedging	67 631 472	64 803 854	43 705 536	40 860 184
Broker				
Agent				
<b>SWAPS</b>	<b>40,403,772</b>	<b>55,304,225</b>	<b>21,541,030</b>	<b>86,230,595</b>
Trading	31 589 657	1 500 000	15 360 423	2 000 000
Hedging	8 814 115	53 804 225	6 180 607	84 230 595
Broker				
Agent				
<b>OPTIONS</b>	<b>26,764,162</b>	<b>26,764,162</b>	<b>13,489,127</b>	<b>13,489,127</b>
Trading				
Hedging	26 764 162	26 764 162	13 489 127	13 489 127
Broker				
Agent				
<b>FUTURES</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>OTHERS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				

**TABLE II 2, continued**

<b>INTEREST RATE</b>	<b>1,389,750</b>	<b>225,869,950</b>	<b>1,389,750</b>	<b>270,267,950</b>
<b>FORWARDS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>SWAPS</b>	<b>0 0</b>	<b>210,878,200</b>	<b>0 0</b>	<b>251,878,200</b>
Trading		63 400 000		63 400 000
Hedging		147 478 200		168 478 200
Broker				
Agent				
<b>OPTIONS</b>	<b>1,389,750</b>	<b>1,389,750</b>	<b>1,389,750</b>	<b>1,389,750</b>
Trading	1 389 750	1 389 750	1 389 750	1 389 750
Hedging				
Broker				
Agent				
<b>FUTURES</b>	<b>0 0</b>	<b>13,602,000</b>	<b>0 0</b>	<b>17 000,000</b>
Trading				12 000 000
Hedging				5 000 000
Broker				
Agent				
<b>OTHERS</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>	<b>0 0</b>
Trading				
Hedging				
Broker				
Agent				
<b>GRAND TOTAL</b>	<b>6,317,883,663</b>	<b>3,273,711,706</b>	<b>6,568,945,309</b>	<b>3,583 114,386</b>

Filename Contracts Cir102

**TABLE II - 3 CONSOLIDATED REPORT OF FORWARD SALES CONTRACTS**

For the Month of May 1998

	<b>Outstanding Beginning Balance</b>	<b>Contracts Executed During the Month</b>	<b>Delivered</b>	<b>Cancelled</b>	<b>Outstanding Ending Balance</b>
Peso Against USD	2,760,961,761 60	3,010,994,059 68	2,839,425,288 66	55,468,420 37	2,877,062,112 25
USD Against Third Currency	270,344,335 18	513,083,379 33	244,335,170 10	0 00	539,092,544 41
Foreign Currency Against Foreign Currency	36,796,369,819 44	22,560,675,413 54	33,007,058,213 52	0 00	26,349,987,019 46
<b>GRAND TOTAL</b>	<b>39,827,675,916 22</b>	<b>26,084,752,852 55</b>	<b>36,090,818,672 28</b>	<b>55,468,420 37</b>	<b>29,766,141,676 12</b>

Filename SalesContr

<b>TABLE II - 4 FINANCIAL DERIVATIVES ACTIVITIES</b>						
<b>NOTIONAL PRINCIPAL</b>						
<b>In Millions of USD</b>						
<b>Date</b>	<b>Total</b>	<b>Swaps</b>	<b>Forwards</b>	<b>Options</b>	<b>Futures</b>	
<b>September 1996</b>	335	186	142	7	0	
<b>October 1996</b>	1,219	234	979	7	0	
<b>November 1996</b>	1,716	271	1,428	17	0	
<b>December 1996</b>	1,679	263	1,399	17	0	
<b>January 1997</b>	2 130	544	1 571	16	0	
<b>February 1997</b>	2 396	474	1,837	86	0	
<b>March 1997</b>	4 028	1,194	2,761	73	0	
<b>April 1997</b>	3 721	1,480	2,132	100	10	
<b>May 1997</b>	4 302	1,546	2 649	106	0	
<b>June 1997</b>	11 047	2 360	8 095	172	3	
<b>July 1997</b>	10 054	3,307	6,641	90	17	
<b>August 1997</b>	6 858	1,959	4 873	21	0	
<b>September 1997</b>	7,225	2,850	4,359	6	9	
<b>October 1997</b>	8,280	2,598	5,588	82	12	
<b>November 1997</b>	7,196	2,748	4,274	166	8	
<b>December 1997</b>	7,182	2,624	4,419	140	0	
<b>January 1998</b>	9 476	2 799	6,510	128	39	
<b>February 1998</b>	7,629	2,650	4,875	104	0	
<b>March 1998</b>	8,108	2,781	5,185	106	36	
<b>April 1998</b>	9,358	3,346	5,916	73	23	
<b>May 1998</b>	9 591	3,336	6,185	56	14	
<b>June 1998</b>	10,153	3,600	6,506	30	17	

Filename FinDeriv

**TABLE III 1 NUMBER OF FINANCIAL INSTITUTIONS  
BY TYPE OF INSTITUTION  
1995 - Latest available**

	1995		1996		1997		March 1998	
	Number	%	Number	%	Number	%	Number	%
<b>Banks</b>	<b>5,569 00</b>	<b>44 77</b>	<b>6,332 00</b>	<b>40 87</b>	<b>7,182 00</b>	<b>41 55</b>	<b>7,316 00</b>	<b>42 00</b>
Commercial Banks	3,221 00	25 89	3,647 00	23 54	4,078 00	23 59	4,133 00	23 73
Thrift Banks	925 00	7 44	1,171 00	7 56	1,389 00	8 04	1 425 00	8 18
Savings & Mortgage Banks	367 00	2 95	426 00	2 75	523 00	3 03	549 00	3 15
Private Development Banks	310 00	2 49	432 00	2 79	524 00	3 03	532 00	3 05
Stock Savings & Loans Associations	248 00	1 99	313 00	2 02	342 00	1 98	344 00	1 97
Specialized Government Banks	77 00	0 62	-	-	-	-	*	
Rural Banks	1 346 00	10 82	1 514 00	9 77	1 715 00	9 92	1 758 00	10 10
<b>Non - Banks</b>	<b>6,871 00</b>	<b>55 23</b>	<b>9,161 00</b>	<b>59 13</b>	<b>10,104 00</b>	<b>58 45</b>	<b>10,104 00</b>	<b>58 00</b>
<b>T o t a l</b>	<b>12,440 00</b>	<b>100 00</b>	<b>15,493 00</b>	<b>100 00</b>	<b>17,286 00</b>	<b>100 00</b>	<b>17,420 00</b>	<b>100 00</b>

\* Consolidated with commercial banks

Source Bangko Sentral ng Pilipinas

Filename Numbers FinSys

**TABLE III 2 ASSETS OF THE PHILIPPINE FINANCIAL SYSTEM**  
**BY TYPE OF INSTITUTION**  
**1 9 9 5 Latest available**  
**In Billion Pesos**

	1 9 9 5		1 9 9 6		1 9 9 7		March 1998	
	in P B	%	in P B	%	in P B	%	in P B	%
<b>Banks</b>	<b>1,595 50</b>	<b>77 70</b>	<b>2,109 60</b>	<b>80 02</b>	<b>2,776 60</b>	<b>83 04</b>	<b>2,887 60</b>	<b>83 58</b>
Commercial Banks	1 347 40	65 61	1 876 20	71 17	2 513 00	75 16	2 417 00	69 96
Thrift Banks	143 30	6 98	185 10	7 02	208 40	6 23	207 70	6 01
Savings & Mortgage Banks	88 40	4 30	98 90	3 75	105 80	3 16	109 00	3 16
Private Development Banks	42 40	2 06	67 20	2 55	81 20	2 43	78 30	2 27
Stock Savings & Loans Associations	12 50	0 61	19 00	0 72	21 40	0 64	20 40	0 59
Specialized Government Banks	68 20	3 32	0 30	0 01	-		*	
Rural Banks	36 60	1 78	48 00	1 82	55 20	1 65	55 20	1 60
<b>Non - Banks</b>	<b>458 00</b>	<b>22 30</b>	<b>526 70</b>	<b>19 98</b>	<b>567 10</b>	<b>16 96</b>	<b>567 10</b>	<b>16 42</b>
<b>T o t a l</b>	<b>2,053 50</b>	<b>100 00</b>	<b>2,636 30</b>	<b>100 00</b>	<b>3,343 70</b>	<b>100 00</b>	<b>3454 7</b>	<b>100</b>

\* Consolidated with commercial banks  
Source: Bangko Sentral ng Pilipinas

**TABLE IV 1  
MULTIPLIER MODELS**

Monetary Aggregate	Coefficients(t-ratios)		adjRsq	Summary Statistics	
	a0	b1		SE	DW
RESERVE MONEY					
M1	- 01 ( 83)	952 (33 09)	94	059	2 21
M3	05 (1 05)	965 (28 43)	92	068	2 29
M4	02 ( 38)	990 (25 97)	91	064	2 22
BASE MONEY					
M1	- 02 (2 01)	905 (20 01)	85	050	2 25
M3	06 (1 30)	949 (23 21)	88	051	1 97
M4	02 ( 53)	986 (27 92)	92	050	1 83

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Notes

**TABLE IV 2**  
**STABILITY TESTS FOR MULTIPLIER MODELS**  
**BREAK POINT TESTED 1992 4**

Monetary aggregate	F-statistics(probability levels)	
	Break test	Forecast test
RESERVE MONEY		
M1	1 17( 32)	0 82( 68)
M3	1 56( 22)	0 72( 79)
M4	2 95( 06)	0 75( 77)
BASE MONEY		
M1	1 48( 24)	1 29( 22)
M3	1 49( 23)	1 11( 37)
M4	3 67( 03)	1 41( 16)

---

Notes

**TABLE IV 3**  
**MONEY-BASE EQUATION RESULTS**

Monetary Aggregate	Sample period				Summary statistics		
	80-92		80-98		adjRsq	SE	DW
	ao	b1	ao	b1			
M1	3 36	617			34	16 7	2 1
	(1 13)	(5 23)					
			7 24	445	23	16 10	2 2
			(3 05)	(4 67)			
M3	11 86	165			06	11 07	2 14
	(6 0)	(2 11)					
			13 52	166	06	12 13	2 02
			(7 54)	(2 31)			
M4	12 49	249			16	10 66	1 98
	(6 57)	(3 30)					
			14 50	232	14	11 21	1 89
			(8 74)	(3 49)			

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Notes

**TABLE IV 4**  
**INFLATION-MONEY REGRESSION**  
**SUMMARY TEST RESULTS**

<b>MONEY</b>	<b>Sum B/F-statistic<sup>1</sup></b>	<b>F-statistic<sup>2</sup></b>	<b>adjRsq</b>	<b>see</b>	<b>DW</b>
<b>Base</b>	0 64 15 61 (0 00)	3 92 (0 00)	0 45	8 84	2 04
<b>M1</b>	0 40 8 66 (0 00)	4 83 (0 00)	0 48	8 59	1 98
<b>M3</b>	0 05 0 05 (0 82)	0 83 (0 54)	0 32	9 85	1 90
<b>M4</b>	-0 05 0 05 (0 82)	0 53 (0 75)	0 31	9 96	1 90

- 
- Notes 1 The reported F-statistic tests the null that the cumulative impact is zero  
2 The reported F-statistic tests the null that the coefficients as a group are zero  
3 Figures in parentheses are associated probabilities

**TABLE IV 5**  
**NOMINAL GNP-MONEY REGRESSIONS**  
**SUMMARY RESULTS**

<b>MONEY</b>	<b>Sum B / F-Statistic</b>	<b>F-statistic</b>	<b>adjRsq</b>	<b>see</b>	<b>DW</b>
<b>Base</b>	0 28 15 80 (0 00)	5 39 (0 00)	0 69	3 64	1 89
<b>M1</b>	0 33 12 31 (0 00)	3 44 (0 01)	0 65	3 96	1 92
<b>M3</b>	0 10 1 25 (0 27)	1 16 (0 34)	0 58	4 27	1 86
<b>M4</b>	0 07 0 36 (0 54)	0 55 (0 74)	0 56	4 39	1 88

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Notes See Table IV 4

**Table V 1 Periods of Financial Sector Liberalization**

<b>COUNTRY</b>	<b>PERIODS OF INTEREST RATE LIBERALIZATION DURING 1980-95</b>		<b>COUNTRY</b>	<b>PERIODS OF INTEREST RATE LIBERALIZATION DURING 1980-95</b>
Austria	1980-95		Korea	1984-88 1991-95
Australia	1981-95		Malaysia	1980-95
Belgium	1986-95		Mexico	1989-95
Canada	1980-95		Netherlands	1980-95
Chile	1980-95		New Zealand	1980 1984-95
Colombia	1980-95		Nigeria	1990-93
Denmark	1981-95		Norway	1985-95
Ecuador	1986-87 1992-95		Papua New Guinea	1980-95
Egypt	1991-95		Paraguay	1990-95
El Salvador	1991-95		Peru	1980-84 1990-95
Finland	1986-95		Philippines	1981-95
France	1980-95		Portugal	1984-95
Germany	1980-95		Sri Lanka	1980-95
Greece	1980-95		Sweden	1980-95
Guatemala	1989-95		Switzerland	1989-95
Guyana	1991-95		Tanzania	1993-95
Honduras	1990-95		Thailand	1989-95
India	1991-95		Togo	1993-95
Indonesia	1983-95		Turkey	1980-82 1984-95
Ireland	1985-95		Uganda	1991-95
Israel	1990-95		United States	1980-95
Italy	1980-95		Uruguay	1980-95
Jamaica	1991-95		Venezuela	1989-95
Japan	1985-95		Zaire	1980-95
Jordan	1988-95		Zambia	1992-95
Kenya	1991-95			

**Table V 2 Initial Dates for Derivatives Trading in Various Markets**

INDEX	EXCHANGE	DATE ESTABLISHED	COUNTRY
OSLO	OSLO STOCK EXCHANGE	1819	Norway
CBOT	CHICAGO BOARD OF TRADE	1848	U S
KCBT	KANSA CITY BOARD OF TRADE	1856	U S
NYCE	NEW YORK COTTON EXCHANGE	1870	U S
NYMEX	NEW YORK MERCANTILE EXCHANGE	1872	U S
MONTREAL	THE MONTREAL EXCHANGE	1874	Canada
MGE	MINNEAPOLIS GRAIN EXCHANGE	1905	U S
CSCE	COFFEE, SUGAR & COCOA EXCHANGE INC	1882	U S
WINNIPEG	THE WINNIPEG COMMODITY EXCHANGE	1887	Canada
CME	CHICAGO MERCANTILE EXCHANGE	1898	U S
ATA	AGRICULTURAL FUTURES MARKET AMSTERDAM	1905	Holland
AMEX	AMERICAN STOCK EXCHANGE	1908	U S
KOBERUB	KOBE RUBBER EXCHANGE	1951	Japan
LCE	LONDON COMMODITY EXCHANGE	1954	G B
SYDNEY	SYDNEY FUTURES EXCHANGE	1960	Australia
CBOE	CHICAGO BOARD OPTIONS EXCHANGE	1972	U S
HONGKONG	HONG KONG FUTURES EXCHANGE LIMITED	1976	Hong Kong
IPE	INTERNATIONAL PETROLEUM EXCHANGE	1980	G B
KUALA-KLCE	KUALA LUMPUR COMMODITY EXCHANGE	1980	Malaysia
LIFFE	LONDON INTERNATIONAL FINANCIAL FUTURES AND OPTIONS EXCHANGE	1982	G B
SIMEX	SINGAPORE INTERNATIONAL MONETARY EXCHANGE LIMITED	1983	Singapore
TOKYOCOM	THE TOKYO COMMODITY EXCHANGE	1984	Japan
NZFE	NEW ZEALAND FUTURES & OPTIONS EXCHANGE LIMITED	1985	New Zealand
STOCKHO	OM STOCKHOLM	1985	Sweden
MATIF	MATIF	1986	France
SOFFEX	SWISS OPTIONS AND FINANCIAL FUTURES EXCHANGE AG	1986	Switzerland
MONEP	MARCHE DES OPTIONS NEGOCIABLES DE PARIS	1987	France
BUDAPEST	BUDAPEST COMMODITY EXCHANGE	1989	Hungary
TIFFE	THE TOKYO INTERNATIONAL FINANCIAL FUTURES EXCHANGE	1989	Japan
OMLX	THE LONDON SECURITIES AND DERIVATIVES EXCHANGE	1989	G B
SAFEX	THE SOUTH AFRICAN FUTURES EXCHANGE	1990	South Africa
BUDASTOC	BUDAPEST STOCK EXCHANGE	1990	Hungary
BELFOX	BELFOX C V /S C	1991	Belgium
MEFF	MEFF RENTA	1991	Spain
BEIJING	BEIJING COMMODITY EXCHANGE	1993	China
KANSAI	KANSAI AGRICULTURAL COMMODITIES EXCHANGE	1993	Japan
FCM	FC&M CITRUS FRUIT AND COMMODITY FUTURES MARKET OF VALENCIA	1995	Spain
KLOFFE	THE KUALA LUMPUR OPTIONS & FINANCIAL FUTURES EXCHANGE BHD	1995	Malaysia
FUTOP	FUTOP MARKET-COPENHAGEN STOCK EXCHANGE	1996	Denmark

**Table V 3 Initial Trading of Derivatives of Various Types**

YEAR	CONTRACT	EXCHANGE	COUNTRY
1859	Agriculture Grains Food & Fiber	Chicago Board of Trade	U S
1878	Non Precious Metals	The London Metal Exchange Limited	England
1933	Precious Metals	COMEX Division New York Mercantile Exchange	U S
1957	Agriculture Meat & Livestock	Chicago Mercantile Exchange	U S
1968	Currencies	Chicago Mercantile Exchange (International Monetary Market Division)	U S
1971	Interest Rate	Chicago Mercantile Exchange (International Monetary Market Division)	U S
1973	Equities	Chicago Board of Options Exchange	U S
1974	Energy	NYMEX Division New York Mercantile Exchange	U S
1978	Index	Chicago Mercantile Exchange (Index and Option Market Division)	U S
1989	Swaps	Bolsa de Mercadorias & Futures	Brazil

Adapted from World Bank Policy Research Paper WPS1887, **The Structure of Derivatives Exchanges**, George Tsetsekos and Panos Varangis 1998

**Table V 4 Introduction Order of Derivatives Contracts (Global)**

**Contracts introduced first in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture Grains Food & Fiber	6	20.7
Currencies	4	13.8
Equities	2	6.9
Index	8	27.6
Interest Rate	6	20.7
Precious Metals	3	10.3

**Contracts introduced second in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture Meat & Livestock	2	13.3
Currencies	3	20.0
Index	4	26.7
Interest Rate	4	26.7
Non-Precious	1	6.7
Precious Metals	1	6.7

**Contracts introduced third in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture Grains Food & Fiber	1	10.0
Currencies	3	30.0
Energy	1	10.0
Equities	2	20.0
Index	1	10.0
Interest Rate	2	20.0

**Contracts introduced fourth in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture Grains Food & Fiber	1	14.3
Equities	1	14.3
Index	1	14.3
Interest Rate	2	28.6
Precious Metals	1	23.6

**Contracts introduced fifth in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture Meat & Livestock	1	20.0
Currencies	2	40.0
Interest Rate	2	40.0

**Contracts introduced sixth in the market**

<b>CONTRACT</b>	<b>Frequency</b>	<b>Percent</b>
Swaps	1	100.0

Emerging Markets includes countries like Brazil Argentina South Africa China Philippines Hungary Malaysia India and Russia (27.5% of the countries in total sample are considered emerging)

FIGURE IV 1  
MONEY MULTIPLIERS  
(Using Base Money)

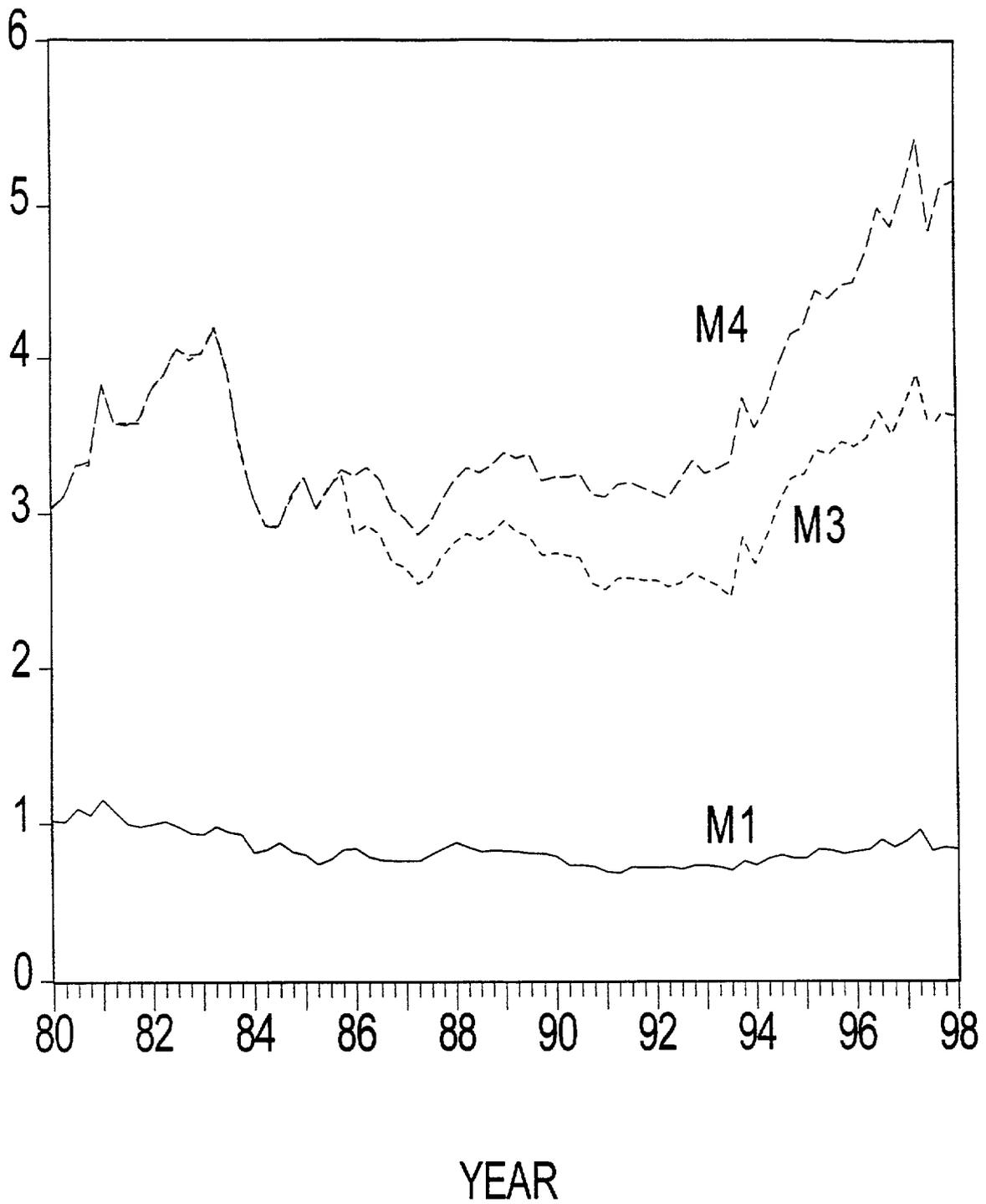
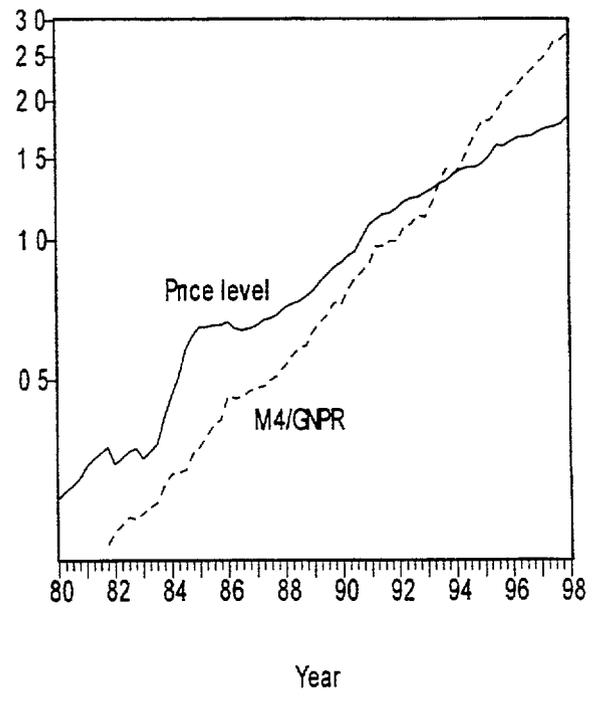
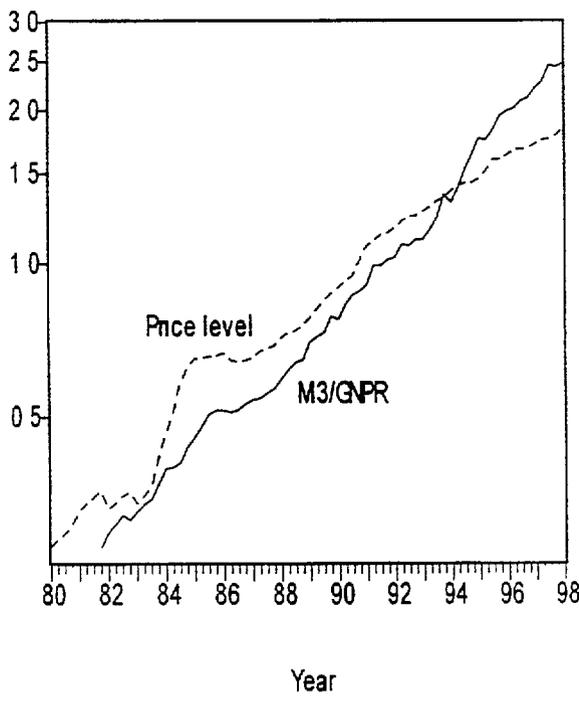
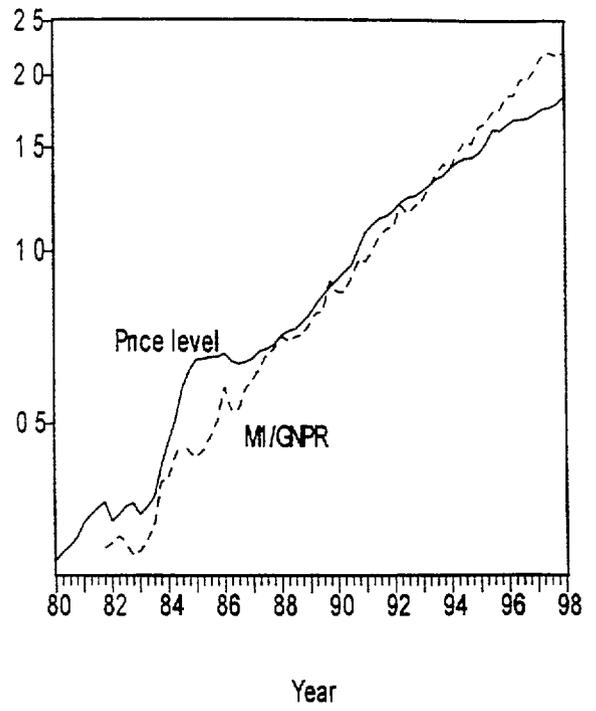
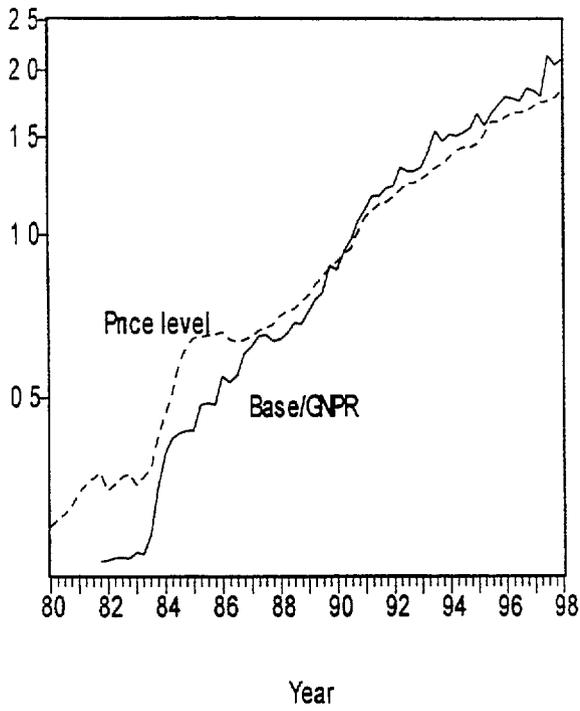


FIGURE 12  
MONEY PER UNIT OF OUTPUT  
AND THE PRICE LEVEL  
(log scale)



ANNEX I 1 LEGAL RESERVE REQUIREMENTS AGAINST PESO DEPOSIT  
 LIABILITIES OF COMMERCIAL BANKS  
 1949 Latest available  
 In Percent

Effective Date	Reserve			Ratio		Liquidity Reserves
	Demand	Savings	Time	NOW Accounts	Deposit Substitutes	
January 10 1949	18	5	5			
February 2 1959	19	5	5			
March 4 1959	20	5	5			
April 3 1959	21	5	5			
September 7 1960	19	5	5			
November 21 1960	18	5	5			
December 21 1961	17	5	5			
January 21 1961	16	5	5			
May 15 1961	15	5	5			
January 21 1962	19	5	5			
August 5 1963	19	6	6			
March 19 1965	10	10	10			
January 24 1966	10	18	5 & 6			
June 26 1967	11	8	8			
July 26 1967	12	8 1/2	8 1/2			
August 26 1967	13	9	9			
September 26 1967	14	10	10			
October 31 1967	15	10	10			
November 30 1967	16	12	12			
December 31 1967	16	14	14			
January 31 1968	16	16	16			
February 16 1970	17	17	17			
March 2 1970	18	18	18			
May 1 1970	18 1/2	18 1/2	18 1/2			
June 1 1970	19	19	19			
July 1 1970	19 1/2	19 1/2	19 1/2			
August 1 1970	20	20	20			
November 29 1973						1
January 7 1974						3
February 4 1974						5
June 30 1975	20	20	20			
April 1 1976						5 1/2
May 1 1976						6
June 1 1976						6 1/2

ANNEX I 1, continued

Effective Date	Demand	Savings	Time	"NOW" Acctounts	Deposit Substitutes	Liquidity Reserves
July 1 1976					7	
August 1 1976					7 1/2	
September 1 1976					8	
October 1 1976					8 1/2	
November 1 1976					9	
December 1 1976					9 1/2	
January 1 1977					10	
January 17 1977	20	20	20			
February 1 1977					10 1/2	
March 1 1977					11	
April 1 1977					11 1/2	
May 1 1977					12	
June 1 1977					12 1/2	
July 1 1977					13	
August 1 1977					13 1/2	
September 1 1977					14	
October 1 1977					14 1/2	
November 1 1977					15	
December 1 1977					15 1/2	
January 1 1978					16	
February 1 1978					16 1/2	
March 1 1978					17	
April 1 1978					17 1/2	
May 1 1978					18	
June 1 1978					18 1/2	
July 1 1978					19	
August 1 1978					19 1/2	
September 1 1978					20	
September 26 1979	20	20	10			
August 22 1980	20	20	20		20	

ANNEX I 1, continued

<u>Effective Date</u>	<u>Demand</u>	<u>Savings</u>	<u>Time</u>	<u>"NOW" Acctounts</u>	<u>Deposit Substitutes</u>	<u>Liquidity Reserves</u>
December 31 1980					20	
February 27 1981	16	16	16 & 5	16		
January 1 1982	18	18	18 & 1	18		
September 1 1983	19	19	19 & 4	19		
October 1 1983	20	20	20 & 4	20		
November 1 1983	21-1/2	21 1/2	21 1/2 & 4	21-1/2		
December 1 1983	23	23	23 & 4	23		
January 1 1984	23	23	23 & 5	23		
April 25 1984	24	24	24 & 6	24		
September 13 1985	23	23	23	23		
September 30 1985					23 6	
May 26 1986	22	22	22 & 6	22	22 6	
August 4 1986	21	21	21 & 6	21	21 6	
November 28 1986					21 5	
December 1 1986	21	21	21 & 5	21		
June 23 1989	21	21	21 & 7	21	21 7	
August 4 1989	21	21	21 & 9	21	21 9	
September 4 1989	20 1/2	20 1/2	20 1/2 & 13	20 1/2	20 1/2 13	
October 5 1989	20	20	20 & 17	20	20 17	
November 5 1989	20	20	20 & 20	20	20 20	
March 26 1990	21	21	21 & 21	21	21 21	
April 25 1990					21 21	
May 25 1990					21 21	
June 25 1990					21 21	
July 25 1990					21 21	
August 24 1990					21 21	
September 24 1990					21 21	
November 15 1990	22	22	22 & 22	22	22 22	
November 30 1990	23	23	23 & 23	23	23 23	
December 28 1990	25	25	25 & 25	25	25 25	
January 29 1993	24	24	24 & 24	24	24 24	

ANNEX I 1, continued

Effective Date	Demand	Savings	Time	"NOW" Accounts	Deposit Substitutes	Liquidity Reserves
April 30 1993	23	23	23 & 23	23	23,23	
July 30 1993	22	22	22 & 22	22	22 22	
December 29 1993	22	22	22 & 22	22	22 22	
December 31 1993						2
August 2 1994	17	17	17 & 17	17		
August 15 1995					15 15	2
May 31 1995	15	15	15 & 15	15	15 15	2
January 3 1997	14	14	14	14	14	2
July 4 1997	13	13	13	13	13	2
July 31 1997	13	13	13	13	13	4
August 15 1997	13	13	13	13	13	5
August 28 1997	13	13	13	13	13	8
September 5 1997	13	13	13	13	13	7
September 12 1997	13	13	13	13	13	6
October 15 1997	13	13	13	13	13	5
November 15 1997	13	13	13	13	13	4
March 20 1998	10	10	10	10	10	7
May 29 1998	8	8	8	8	8	7

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Source Statistical Bulletin  
 Bangko Sentral ng Pilipinas  
 Filename RRR

**ANNEX I 2 LEGAL RESERVE REQUIREMENTS AGAINST PESO TRUST ACCOUNTS**

In Percent

Date	Common Trust Funds		T O F A - Others		F C D U / E F C D U	
	Regular Reserve Requirement	Liquidity Reserve	Regular Reserve Requirement	Liquidity Reserve	Regular Reserve Requirement	Liquidity Reserve
October 4 1993	10					10
May 15 1995	10	3				
June 15 1995	10	5				
January 3 1997	10	4	3	1		
February 28 1997	10	4	6	2		
May 2 1997	10	4	9	3		
July 4 1997	10	3	10	3		
July 31 1997	10	5	10	5		
August 15 1997	10	6	10	6		
August 28 1997	10	9	10	9		
September 5 1997	10	8	10	8		
September 12 1997	10	7				
October 15 1997	10	6	10	6		
November 15 1997	7	8	7	8		
May 29 1998	5	8	5	8		

Source: Bangko Sentral ng Pilipinas

**ANNEX I 3 THE THREE-TIERED FOREIGN CURRENCY DEPOSIT SYSTEM**

	<b>343 Banks</b>	<b>Foreign Currency Deposit Units (FCDUs)</b>	<b>Offshore Banking Units (OBUs)</b>
1 Regulations Governing Operations	1 a) RA 6426 b) CBC 343	1 a) P D 1035 b) CBC 547 c) CBC 623 d) Revenue Regulations	1 a) P D 1034 b) CBC 546 c) Revenue Regulations 10/76 d) CBC 685
2 Participating Banks	2 a) Savings banks b) Commercial banks (Phil Commercial banks plus the 4 branches of foreign banks)	2 a) Commercial banks b) Thrift banks	2 Branches, subsidiaries and affiliates of foreign banks
3 Qualified Depositors	3 a) Residents b) Non-residents	3 a) Residents b) Non-residents	
4 Amount of Deposit	4 Any amount	4 Any amount	
5 Types of Deposits	5 a) Savings b) Time c) Demand d) Trust	5 a) Savings b) Time c) Demand d) Trust	
6 Medium of Transaction	6 a) Pesos b) Reserve currencies	6 a) Pesos b) Reserve currencies c) Any currency freely convertible into the reserve currencies	6 Any foreign currency (For transactions with residents only reserve currencies or any foreign currency freely convertible into reserve currencies The peso is used for administrative transactions only)

### ANNEX III 1 Government Actions To Combat Money Laundering

Government	Hong Kong	Indonesia	Macau	Malaysia	Philippines	Singapore	Sri Lanka	Taiwan
Criminalized Drug Money Laundering	Yes	No	No	No	No	Yes	No	Yes
Criminalized Beyond Drugs	Yes	No	No	No	No	No	No	Yes
Record Large Transactions	Yes	No	No			Yes	No	Yes
Maintain Records Over Time	Yes	No	No			Yes	No	Yes
Report Suspicious Transactions	M	No	No		No	M	No	M
Financial Intelligence Unit	Yes	No	No	No	No	No	No	No
System for Identifying/ Forfeiting Assets	Yes		No	Yes		Yes	No	Yes
Arrangements for Asset Sharing	Yes		No		No	No	No	No
Cooperates W/Domestic Law Enforcement	Yes			Yes		Yes	Yes	Yes
Cooperates W/International Law Enf	Yes				Yes	Yes	No	Yes
International Transportation Of Currency	Yes	No	No		Yes	No	No	Yes
Mutual Legal Assistance	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Non-Bank Financial Institutions	Yes	No	No		No	Yes	No	Yes
Disclosure Protection "Safe Harbor"	Yes	No				Yes	No	Yes
Offshore Financial Centers	Yes	No	Yes	Yes	No	Yes	Yes	Yes
States Parties to 1988 UN Convention	Yes	No	Yes	Yes	Yes	Yes	Yes	NA
Compliance W/UN Convention	Yes	No	No	No	No	No	Yes	NA
Positive Responses (Total)	16	1	3	4	4	11	5	12

Source The International Narcotics Control Strategy Report, 1997  
 Bureau for International Narcotics and Law Enforcement Affairs  
 United States Department of State

## Glossary of Terms

- 1      “Criminalized Drug Money Laundering”   The government has enacted laws criminalizing the offence of money laundering related to drug trafficking
- 2      “Criminalized Beyond Drugs”   The government has extended anti-money laundering statues and regulations to include non-drug related money laundering
- 3      “Record Large Transactions”   By law or regulation, banks are required to maintain records of large transactions in currency or other monetary instruments
- 4      “Maintain Records Over Time”   By law or regulation, banks are required to keep records, especially of large or unusual transaction, for a specified period of time, e.g. five years
- 5      “Report Suspicious Transactions”   By law or regulation, banks are required to record and report suspicious or unusual transactions to designated authorities. This is indicated by an “M” for Mandatory in the column. A “P” indicates that by law or regulation, banks are permitted to record and report suspicious transactions. An effective know-your-customer policy is considered a prerequisite in this category.
- 6      “Financial Intelligence Unit”   The government has established a central, national agency responsible for receiving (and, as permitted, requesting), analyzing, and disseminating to the competent authorities, disclosures of financial information concerning suspected proceeds of crime, or required by national legislation or regulation, in order to counter money laundering. These reflect those countries that have met the Egmont definition of an FIU.
- 7      “System for Identifying and Forfeiting Assets”   The government has enacted laws authorizing the tracing, freezing, seizure and forfeiture of assets identified as relating to or generated by money laundering activities.
- 8      “Arrangements for Asset Sharing”   By law, regulation or bilateral agreement, the government permits sharing of seized assets with third party governments which assisted in the conduct of the underlying investigation.
- 9      “Cooperates w/Domestic Law Enforcement”   By law, or regulation, banks are required to cooperate with authorized law enforcement investigations into money laundering or the predicate offence, including production of bank records, or otherwise lifting the veil of bank secrecy.
- 10     “Cooperates w/International Law Enforcement”   By law or regulation, banks are permitted/required to cooperate with authorized investigations involving or initiated by third party governments, including sharing of records or other financial data.

- 11 "International Transportation of Currency" By law or regulation, the government, in cooperation with banks, controls or monitors the flow of currency and monetary instruments crossing its borders. Of critical weight here are the presence or absence of wire transfer regulations and use of reports completed by each person transiting the country and reports of monetary transmitters.
- 12 "Mutual Legal Assistance" By law or through treaty, the government has agreed to provide and receive mutual legal assistance, including the sharing of records and data.
- 13 "Non-Bank Financial Institutions" By law or regulation, the government requires non-bank financial institutions to meet the same customer identification standards and adhere to the same reporting requirements that it imposes on banks.
- 14 "Disclosure Protection 'Safe Harbour'" By law, the government provides a "safe harbour" defense to banks or other financial institutions and their employees who provide otherwise confidential banking data to authorities in pursuit of authorized investigations.
- 15 "Offshore Financial Centres" By law or regulation, the government authorized the licensing of offshore banking facilities.
- 16 "States Parties to 1988 UN Drug Convention" The country is a party to the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, or the country that is responsible for the jurisdiction in international relations has extended the application of the Convention to the jurisdiction.
- 17 "Compliance w/UN Convention" The government is meeting the goals of the 1988 UN Drug Convention by effectively applying implementing legislation.

## ANNEX III 2 US Prompt Corrective Action Regulation

### FDIC-LRRA -- § 38 Prompt Corrective Action

#### (a) RESOLVING PROBLEMS TO PROTECT DEPOSIT INSURANCE FUNDS --

(1) PURPOSE -- The purpose of this section is to resolve the problems of insured depository institutions at the least possible long-term loss to the deposit insurance fund

(2) PROMPT CORRECTIVE ACTION REQUIRED -- Each appropriate Federal banking agency and the Corporation (acting in the Corporation's capacity as the insurer of depository institutions under this Act) shall carry out the purpose of this section by taking prompt corrective action to resolve the problems of insured depository institutions /1

*/1 Editor's Note § 131(b) of title I of the Act of December 19 1991 (Pub L No 102-242, 105 Stat 2266) provides as follows*

*"(b) DEADLINE FOR REGULATIONS -- Each appropriate Federal banking agency (as defined in § 3 of the Federal Deposit Insurance Act (12 U S C 1813)) (and the Corporation acting in the Corporation's capacity as insurer of depository institutions under that Act) shall, after notice and opportunity for comment promulgate final regulations under § 38 of the Federal Deposit Insurance Act (as added by subsection (a)) not later than 9 months after the date of enactment of this Act and those regulations shall become effective not later than 1 year after that date of enactment "*

[Codified to 12 U S C 1831o(a)]

[Source § 2[38(a)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by § 131(a) of title I of the Act of December 19 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

#### (b) DEFINITIONS -- For purposes of this section

##### (1) CAPITAL CATEGORIES --

(A) WELL CAPITALIZED -- An insured depository institution is "well capitalized" if it significantly exceeds the required minimum level for each relevant capital measure

(B) ADEQUATELY CAPITALIZED -- An insured depository institution is "adequately capitalized" if it meets the required minimum level for each relevant capital measure

(C) UNDERCAPITALIZED -- An insured depository institution is "undercapitalized"

if it fails to meet the required minimum level for any relevant capital measure

(D) SIGNIFICANTLY UNDERCAPITALIZED -- An insured depository institution is "significantly undercapitalized" if it is significantly below the required minimum level for any relevant capital measure

(E) CRITICALLY UNDERCAPITALIZED -- An insured depository institution is "critically undercapitalized" if it fails to meet any level specified under subsection (c)(3)(A)

(2) OTHER DEFINITIONS --

(A) AVERAGE --

(i) IN GENERAL -- The "average" of an accounting item (such as total assets or tangible equity) during a given period means the sum of that item at the close of business on each business day during that period divided by the total number of business days in that period

(ii) AGENCY MAY PERMIT WEEKLY AVERAGING FOR CERTAIN INSTITUTIONS -- In the case of insured depository institutions that have total assets of less than \$300,000,000 and normally file reports of condition reflecting weekly (rather than daily) averages of accounting items, the appropriate Federal banking agency may provide that the "average" of an accounting item during a given period means the sum of that item at the close of business on the relevant business day each week during that period divided by the total number of weeks in that period

(B) CAPITAL DISTRIBUTION -- The term "capital distribution" means --

(i) a distribution of cash or other property by any insured depository institution or company to its owners made on account of that ownership, but not including --

(I) any dividend consisting only of shares of the institution or company or rights to purchase such shares, or

(II) any amount paid on the deposits of a mutual or cooperative institution that the appropriate Federal banking agency determines is not a distribution for purposes of this section,

(ii) a payment by an insured depository institution or company to repurchase, redeem, retire or otherwise acquire any of its shares or other ownership interests including any extension of credit to finance an affiliated company's acquisition of those shares or interests, or

(iii) a transaction that the appropriate Federal banking agency or the Corporation determines by order or regulation, to be in substance a distribution of capital to the

owners of the insured depository institution or company

(C) CAPITAL RESTORATION PLAN -- The term "capital restoration plan" means a plan submitted under subsection (e)(2)

(D) COMPANY -- The term "company" has the same meaning as in § 2 of the Bank Holding Company Act of 1956

(E) COMPENSATION -- The term "compensation" includes any payment of money or provision of any other thing of value in consideration of employment

(F) RELEVANT CAPITAL MEASURE -- The term "relevant capital measure" means the measures described in subsection (c)

(G) REQUIRED MINIMUM LEVEL -- The term "required minimum level" means, with respect to each relevant capital measure, the minimum acceptable capital level specified by the appropriate Federal banking agency by regulation

(H) SENIOR EXECUTIVE OFFICER -- The term "senior executive officer" has the same meaning as the term "executive officer" in § 22(h) of the Federal Reserve Act

(I) SUBORDINATED DEBT -- The term "subordinated debt" means debt subordinated to the claims of general creditors

[Codified to 12 U S C 1831o(b)]

[Source § 2[38(b)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882) effective September 21, 1950 as added by § 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

(c) CAPITAL STANDARDS --

(1) RELEVANT CAPITAL MEASURES --

(A) IN GENERAL -- Except as provided in subparagraph (B)(ii), the capital standards prescribed by each appropriate Federal banking agency shall include --

(i) a leverage limit, and

(ii) a risk-based capital requirement

(B) OTHER CAPITAL MEASURES -- An appropriate Federal banking agency may, by regulation --

(i) establish any additional relevant capital measures to carry out the purpose of this section, or

(ii) rescind any relevant capital measure required under subparagraph (A) upon determining (with the concurrence of the other Federal banking agencies) that the measure is no longer an appropriate means for carrying out the purpose of this section

(2) CAPITAL CATEGORIES GENERALLY -- Each appropriate Federal banking agency shall, by regulation, specify for each relevant capital measure the levels at which an insured depository institution is well capitalized, adequately capitalized, undercapitalized, and significantly undercapitalized

(3) CRITICAL CAPITAL --

(A) AGENCY TO SPECIFY LEVEL --

(i) LEVERAGE LIMIT -- Each appropriate Federal banking agency shall, by regulation, in consultation with the Corporation specify the ratio of tangible equity to total assets at which an insured depository institution is critically undercapitalized

(ii) OTHER RELEVANT CAPITAL MEASURES -- The agency may, by regulation, specify for 1 or more other relevant capital measures, the level at which an insured depository institution is critically undercapitalized

(B) LEVERAGE LIMIT RANGE -- The level specified under subparagraph (A)(i) shall require tangible equity in an amount --

(i) not less than 2 percent of total assets and

(ii) except as provided in clause (i), not more than 65 percent of the required minimum level of capital under the leverage limit

(C) FDIC'S CONCURRENCE REQUIRED -- The appropriate Federal banking agency shall not, without the concurrence of the Corporation, specify a level under subparagraph (A)(i) lower than that specified by the Corporation for State nonmember insured banks

[Codified to 12 U S C 1831o(c)]

[Source § 2[38(c)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950 as added by § 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

(d) PROVISIONS APPLICABLE TO ALL INSTITUTIONS --

(1) CAPITAL DISTRIBUTIONS RESTRICTED --

(A) IN GENERAL -- An insured depository institution shall make no capital

distribution if, after making the distribution, the institution would be undercapitalized

(B) EXCEPTION -- Notwithstanding subparagraph (A), the appropriate Federal banking agency may permit, after consultation with the Corporation, an insured depository institution to repurchase, redeem, retire or otherwise acquire shares or ownership interests if the repurchase, redemption, retirement, or other acquisition --

(i) is made in connection with the issuance of additional shares or obligations of the institution in at least an equivalent amount, and

(ii) will reduce the institution's financial obligations or otherwise improve the institution's financial condition

(2) MANAGEMENT FEES RESTRICTED -- An insured depository institution shall pay no management fee to any person having control of that institution if, after making the payment, the institution would be undercapitalized

[Codified to 12 U S C 1831o(d)]

[Source § 2[38(d)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by § 131(a) of title I of the Act of December 19 1991 (Pub L No 102-242, 105 Stat 2253) effective December 19, 1992]

(e) PROVISIONS APPLICABLE TO UNDERCAPITALIZED INSTITUTIONS --

(1) MONITORING REQUIRED -- Each appropriate Federal banking agency shall --

(A) closely monitor the condition of any undercapitalized insured depository institution,

(B) closely monitor compliance with capital restoration plans, restrictions, and requirements imposed under this section, and

(C) periodically review the plan, restrictions, and requirements applicable to any undercapitalized insured depository institution to determine whether the plan, restrictions and requirements are achieving the purpose of this section

(2) CAPITAL RESTORATION PLAN REQUIRED --

(A) IN GENERAL -- Any undercapitalized insured depository institution shall submit an acceptable capital restoration plan to the appropriate Federal banking agency within the time allowed by the agency under subparagraph (D)

(B) CONTENTS OF PLAN -- The capital restoration plan shall --

(i) specify --

(I) the steps the insured depository institution will take to become adequately capitalized,

(II) the levels of capital to be attained during each year in which the plan will be in effect,

(III) how the institution will comply with the restrictions or requirements then in effect under this section, and

(IV) the types and levels of activities in which the institution will engage, and

(11) contain such other information as the appropriate Federal banking agency may require

(C) CRITERIA FOR ACCEPTING PLAN -- The appropriate Federal banking agency shall not accept a capital restoration plan unless the agency determines that --

(i) the plan --

(I) complies with subparagraph (B),

(II) is based on realistic assumptions, and is likely to succeed in restoring the institution's capital, and

(III) would not appreciably increase the risk (including credit risk, interest-rate risk and other types of risk) to which the institution is exposed, and

(11) if the insured depository institution is undercapitalized, each company having control of the institution has --

(I) guaranteed that the institution will comply with the plan until the institution has been adequately capitalized on average during each of 4 consecutive calendar quarters, and

(II) provided appropriate assurances of performance

(D) DEADLINES FOR SUBMISSION AND REVIEW OF PLANS -- The appropriate Federal banking agency shall by regulation establish deadlines that --

(i) provide insured depository institutions with reasonable time to submit capital restoration plans, and generally require an institution to submit a plan not later than 45 days after the institution becomes undercapitalized,

(11) require the agency to act on capital restoration plans expeditiously and generally not later than 60 days after the plan is submitted, and

(11) require the agency to submit a copy of any plan approved by the agency to the Corporation before the end of the 45-day period beginning on the date such approval is granted

(E) GUARANTEE LIABILITY LIMITED --

(1) IN GENERAL -- The aggregate liability under subparagraph (C)(11) of all companies having control of an insured depository institution shall be the lesser of --

(I) an amount equal to 5 percent of the institution's total assets at the time the institution became undercapitalized, or

(II) the amount which is necessary (or would have been necessary) to bring the institution into compliance with all capital standards applicable with respect to such institution as of the time the institution fails to comply with a plan under this subsection

(11) CERTAIN AFFILIATES NOT AFFECTED -- This paragraph may not be construed as --

(I) requiring any company not having control of an undercapitalized insured depository institution to guarantee or otherwise be liable on, a capital restoration plan,

(II) requiring any person other than an insured depository institution to submit a capital restoration plan, or

(III) affecting compliance by brokers, dealers, government securities brokers, and government securities dealers with the financial responsibility requirements of the Securities Exchange Act of 1934 and regulations and orders thereunder

(3) ASSET GROWTH RESTRICTED -- An undercapitalized insured depository institution shall not permit its average total assets during any calendar quarter to exceed its average total assets during the preceding calendar quarter unless --

(A) the appropriate Federal banking agency has accepted the institution's capital restoration plan,

(B) any increase in total assets is consistent with the plan, and

(C) the institution's ratio of tangible equity to assets increases during the calendar quarter at a rate sufficient to enable the institution to become adequately capitalized within a reasonable time

(4) PRIOR APPROVAL REQUIRED FOR ACQUISITIONS, BRANCHING, AND NEW LINES OF BUSINESS -- An undercapitalized insured depository institution

shall not, directly or indirectly, acquire any interest in any company or insured depository institution, establish or acquire any additional branch office, or engage in any new line of business unless --

(A) the appropriate Federal banking agency has accepted the insured depository institution's capital restoration plan, the institution is implementing the plan, and the agency determines that the proposed action is consistent with and will further the achievement of the plan, or

(B) the Board of Directors determines that the proposed action will further the purpose of this section

(5) DISCRETIONARY SAFEGUARDS -- The appropriate Federal banking agency may, with respect to any undercapitalized insured depository institution, take actions described in any subparagraph of subsection (f)(2) if the agency determines that those actions are necessary to carry out the purpose of this section

[Codified to 12 U S C 1831o(e)]

[Source § 2[38(e)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by § 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992, as amended by § 1603(d)(1)(A) of title XVI of the Act of October 28, 1992 (Pub L No 102-550, 106 Stat 4079), effective December 19, 1992]

(f) PROVISIONS APPLICABLE TO SIGNIFICANTLY UNDERCAPITALIZED INSTITUTIONS AND UNDERCAPITALIZED INSTITUTIONS THAT FAIL TO SUBMIT AND IMPLEMENT CAPITAL RESTORATION PLANS --

(1) IN GENERAL -- This subsection shall apply with respect to any insured depository institution that --

(A) is significantly undercapitalized, or

(B) is undercapitalized and --

(i) fails to submit an acceptable capital restoration plan within the time allowed by the appropriate Federal banking agency under subsection (e)(2)(D), or

(ii) fails in any material respect to implement a plan accepted by the agency

(2) SPECIFIC ACTIONS AUTHORIZED -- The appropriate Federal banking agency shall carry out this section by taking 1 or more of the following actions

(A) REQUIRING RECAPITALIZATION -- Doing 1 or more of the following

(1) Requiring the institution to sell enough shares or obligations of the institution so that the institution will be adequately capitalized after the sale

(11) Further requiring that instruments sold under clause (1) be voting shares

(111) Requiring the institution to be acquired by a depository institution holding company, or to combine with another insured depository institution, if 1 or more grounds exist for appointing a conservator or receiver for the institution

(B) RESTRICTING TRANSACTIONS WITH AFFILIATES --

(1) Requiring the institution to comply with § 23A of the Federal Reserve Act as if subsection (d)(1) of that section (exempting transactions with certain affiliated institutions) did not apply

(11) Further restricting the institution's transactions with affiliates

(C) RESTRICTING INTEREST RATES PAID --

(1) IN GENERAL -- Restricting the interest rates that the institution pays on deposits to the prevailing rates of interest on deposits of comparable amounts and maturities in the region where the institution is located, as determined by the agency

(11) RETROACTIVE RESTRICTIONS PROHIBITED -- This subparagraph does not authorize the agency to restrict interest rates paid on time deposits made before (and not renewed or renegotiated after) the agency acted under this subparagraph

(D) RESTRICTING ASSET GROWTH -- Restricting the institution's asset growth more stringently than subsection (e)(3), or requiring the institution to reduce its total assets

(E) RESTRICTING ACTIVITIES -- Requiring the institution or any of its subsidiaries to alter, reduce, or terminate any activity that the agency determines poses excessive risk to the institution

(F) IMPROVING MANAGEMENT -- Doing 1 or more of the following

(1) NEW ELECTION OF DIRECTORS -- Ordering a new election for the institution's board of directors

(11) DISMISSING DIRECTORS OR SENIOR EXECUTIVE OFFICERS -- Requiring the institution to dismiss from office any director or senior executive officer who had held office for more than 180 days immediately before the institution became undercapitalized. Dismissal under this clause shall not be construed to be a removal under § 8 /1

*/1 Editor's Note § 131(e)(1) of title I of the Act of December 19 1991 (Pub L No 102-242, 105 Stat 2267) provides as follows*

*"(e) TRANSITION RULE REGARDING CURRENT DIRECTORS AND SENIOR EXECUTIVE OFFICERS --*

*"(1) DISMISSAL FROM OFFICE -- § 38(f)(2)(F)(ii) of the Federal Deposit Insurance Act (as added by subsection (a)) shall not apply with respect to --*

*"(A) any director whose current term as a director commenced on or before the date of enactment of this Act and has not been extended --*

*"(i) after that date of enactment, or*

*"(ii) to evade § 38(f)(2)(F)(ii), or*

*(B) any senior executive officer who accepted employment in his or her current position on or before the date of enactment of this Act and whose contract of employment has not been renewed or renegotiated --*

*"(i) after that date of enactment, or*

*"(ii) to evade § 38(f)(2)(F)(ii) "*

(iii) EMPLOYING QUALIFIED SENIOR EXECUTIVE OFFICERS -- Requiring the institution to employ qualified senior executive officers (who, if the agency so specifies, shall be subject to approval by the agency)

(G) PROHIBITING DEPOSITS FROM CORRESPONDENT BANKS -- Prohibiting the acceptance by the institution of deposits from correspondent depository institutions, including renewals and rollovers of prior deposits

(H) REQUIRING PRIOR APPROVAL FOR CAPITAL DISTRIBUTIONS BY BANK HOLDING COMPANY -- Prohibiting any bank holding company having control of the insured depository institution from making any capital distribution without the prior approval of the Board of Governors of the Federal Reserve System

(I) REQUIRING DIVESTITURE -- Doing one or more of the following

(i) DIVESTITURE BY THE INSTITUTION -- Requiring the institution to divest itself of or liquidate any subsidiary if the agency determines that the subsidiary is in danger of becoming insolvent and poses a significant risk to the institution, or is likely to cause a significant dissipation of the institution's assets or earnings

(ii) DIVESTITURE BY PARENT COMPANY OF NONDEPOSITORY AFFILIATE -- Requiring any company having control of the institution to divest itself of or

liquidate any affiliate other than an insured depository institution if the appropriate Federal banking agency for that company determines that the affiliate is in danger of becoming insolvent and poses a significant risk to the institution, or is likely to cause a significant dissipation of the institution's assets or earnings

(11) DIVESTITURE OF INSTITUTION -- Requiring any company having control of the institution to divest itself of the institution if the appropriate Federal banking agency for that company determines that divestiture would improve the institution's financial condition and future prospects

(J) REQUIRING OTHER ACTION -- Requiring the institution to take any other action that the agency determines will better carry out the purpose of this section than any of the actions described in this paragraph

(3) PRESUMPTION IN FAVOR OF CERTAIN ACTIONS -- In complying with paragraph (2), the agency shall take the following actions, unless the agency determines that the actions would not further the purpose of this section

(A) The action described in clause (1) or (11) of paragraph (2)(A) (relating to requiring the sale of shares or obligations or requiring the institution to be acquired by or combine with another institution)

(B) The action described in paragraph (2)(B)(1) (relating to restricting transactions with affiliates)

(C) The action described in paragraph (2)(C) (relating to restricting interest rates)

(4) SENIOR EXECUTIVE OFFICERS' COMPENSATION RESTRICTED -- /1

*/1 Editor's Note § 131(e)(2) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2267) provides as follows*

*"(e) TRANSITION RULE REGARDING CURRENT DIRECTORS AND SENIOR EXECUTIVE OFFICERS --*

*"(2) RESTRICTING COMPENSATION -- § 38(f)(4) Of the Federal Deposit Insurance Act (as added by subsection (a)) shall not apply with respect to any senior executive officer who accepted employment in his or her current position on or before the date of enactment of this Act and whose contract of employment has not been renewed or renegotiated --*

*"(A) after that date of enactment or*

*"(B) to evade § 38(f)(4) "*

(A) IN GENERAL -- The insured depository institution shall not do any of the

following without the prior written approval of the appropriate Federal banking agency

(1) Pay any bonus to any senior executive officer

(11) Provide compensation to any senior executive officer at a rate exceeding that officer's average rate of compensation (excluding bonuses, stock options, and profit-sharing) during the 12 calendar months preceding the calendar month in which the institution became undercapitalized

(B) FAILING TO SUBMIT PLAN -- The appropriate Federal banking agency shall not grant any approval under subparagraph (A) with respect to an institution that has failed to submit an acceptable capital restoration plan

(5) DISCRETION TO IMPOSE CERTAIN ADDITIONAL RESTRICTIONS -- The agency may impose 1 or more of the restrictions prescribed by regulation under subsection (1) if the agency determines that those restrictions are necessary to carry out the purpose of this section

(6) CONSULTATION WITH OTHER REGULATORS -- Before the agency or Corporation makes a determination under paragraph (2)(1) with respect to an affiliate that is a broker, dealer, government securities broker, government securities dealer, investment company, or investment adviser, the agency or Corporation shall consult with the Securities and Exchange Commission and, in the case of any other affiliate which is subject to any financial responsibility or capital requirement, any other appropriate regulator of such affiliate with respect to the proposed determination of the agency or the Corporation and actions pursuant to such determination

[Codified to 12 U S C 1831o(f)]

[Source § 2[38(f)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882) effective September 21, 1950, as added by § 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992, as amended by § 1603(d)(1)(B) and (D) of title XVI of the Act of October 28, 1992 (Pub L No 102-550, 106 Stat 4079), effective December 19, 1992, § 602(a)(64) of title VI of the Act of September 23, 1994 (Pub L No 103-325, 108 Stat 2291), effective September 23, 1994]

(g) MORE STRINGENT TREATMENT BASED ON OTHER SUPERVISORY CRITERIA --

(1) IN GENERAL -- If the appropriate Federal banking agency determines (after notice and an opportunity for hearing) that an insured depository institution is in an unsafe or unsound condition or, pursuant to § 8(b)(8), deems the institution to be engaging in an unsafe or unsound practice the agency may --

(A) if the institution is well capitalized, reclassify the institution as adequately capitalized,

(B) if the institution is adequately capitalized (but not well capitalized), require the institution to comply with 1 or more provisions of subsections (d) and (e), as if the institution were undercapitalized, or

(C) if the institution is undercapitalized, take any 1 or more actions authorized under subsection (f)(2) as if the institution were significantly undercapitalized

(2) CONTENTS OF PLAN -- Any plan required under paragraph (1) shall specify the steps that the insured depository institution will take to correct the unsafe or unsound condition or practice. Capital restoration plans shall not be required under paragraph (1)(B)

[Codified to 12 U S C 1831o(g)]

[Source § 2[38(g)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by § 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992, as amended by § 1603(d)(1)(C) of title XVI of the Act of October 28, 1992 (Pub L No 102-550, 106 Stat 4079), effective December 19, 1992]

(h) PROVISIONS APPLICABLE TO CRITICALLY UNDERCAPITALIZED INSTITUTIONS --

(1) ACTIVITIES RESTRICTED -- Any critically undercapitalized insured depository institution shall comply with restrictions prescribed by the Corporation under subsection (i)

(2) PAYMENTS ON SUBORDINATED DEBT PROHIBITED --

(A) IN GENERAL -- A critically undercapitalized insured depository institution shall not, beginning 60 days after becoming critically undercapitalized, make any payment of principal or interest on the institution's subordinated debt

(B) EXCEPTIONS -- The Corporation may make exceptions to subparagraph (A) if --

(i) the appropriate Federal banking agency has taken action with respect to the insured depository institution under paragraph (3)(A)(ii), and

(ii) the Corporation determines that the exception would further the purpose of this section

(C) LIMITED EXEMPTION FOR CERTAIN SUBORDINATED DEBT -- Until July 15, 1996, subparagraph (A) shall not apply with respect to any subordinated debt

outstanding on July 15, 1991, and not extended or otherwise renegotiated after July 15, 1991

(D) ACCRUAL OF INTEREST -- Subparagraph (A) does not prevent unpaid interest from accruing on subordinated debt under the terms of that debt, to the extent otherwise permitted by law

(3) CONSERVATORSHIP, RECEIVERSHIP, OR OTHER ACTION REQUIRED --

(A) IN GENERAL -- The appropriate Federal banking agency shall, not later than 90 days after an insured depository institution becomes critically undercapitalized --

(i) appoint a receiver (or, with the concurrence of the Corporation, a conservator) for the institution, or

(ii) take such other action as the agency determines, with the concurrence of the Corporation, would better achieve the purpose of this section after documenting why the action would better achieve that purpose

(B) PERIODIC REDETERMINATIONS REQUIRED -- Any determination by an appropriate Federal banking agency under subparagraph (A)(ii) to take any action with respect to an insured depository institution in lieu of appointing a conservator or receiver shall cease to be effective not later than the end of the 90-day period beginning on the date that the determination is made and a conservator or receiver shall be appointed for that institution under subparagraph (A)(i) unless the agency makes a new determination under subparagraph (A)(ii) at the end of the effective period of the prior determination

(C) APPOINTMENT OF RECEIVER REQUIRED IF OTHER ACTION FAILS TO RESTORE CAPITAL --

(i) IN GENERAL -- Notwithstanding subparagraphs (A) and (B) the appropriate Federal banking agency shall appoint a receiver for the insured depository institution if the institution is critically undercapitalized on average during the calendar quarter beginning 270 days after the date on which the institution became critically undercapitalized

(ii) EXCEPTION -- Notwithstanding clause (i), the appropriate Federal banking agency may continue to take such other action as the agency determines to be appropriate in lieu of such appointment if --

(I) the agency determines, with the concurrence of the Corporation, that (aa) the insured depository institution has positive net worth, (bb) the insured depository institution has been in substantial compliance with an approved capital restoration plan which requires consistent improvement in the institution's capital since the date of the approval of the plan, (cc) the insured depository institution is profitable or has

an upward trend in earnings the agency projects as sustainable, and (dd) the insured depository institution is reducing the ratio of nonperforming loans to total loans, and

(II) the head of the appropriate Federal banking agency and the Chairperson of the Board of Directors both certify that the institution is viable and not expected to fail

[Codified to 12 U S C 1831o(h)]

[Source Section 2[38(h)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

(i) RESTRICTING ACTIVITIES OF CRITICALLY UNDERCAPITALIZED INSTITUTIONS -- carry out the purpose of this section, the Corporation shall by regulation or order --

(1) restrict the activities of any critically undercapitalized insured depository institution, and

(2) at a minimum, prohibit any such institution from doing any of the following without the Corporation's prior written approval

(A) Entering into any material transaction other than in the usual course of business, including any investment expansion, acquisition, sale of assets, or other similar action with respect to which the depository institution is required to provide notice to the appropriate Federal banking agency

(B) Extending credit for any highly leveraged transaction

(C) Amending the institution's charter or bylaws, except to the extent necessary to carry out any other requirement of any law, regulation, or order

(D) Making any material change in accounting methods

(E) Engaging in any covered transaction (as defined in section 23A(b) of the Federal Reserve Act)

(F) Paying excessive compensation or bonuses

(G) Paying interest on new or renewed liabilities at a rate that would increase the institution's weighted average cost of funds to a level significantly exceeding the prevailing rates of interest on insured deposits in the institution's normal market areas

[Codified to 12 U S C 1831o(i)]

[Source Section 2[38(i)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

(j) CERTAIN GoVERNMENT-CONTROLLED INSTITUTIONS EXEMPTED --  
Subsections (e) through (i) (other than paragraph (3) of subsection (e)) shall not apply --

(1) to an insured depository institution for which the Corporation or the Resolution Trust Corporation is conservator, or

(2) to a bridge bank, none of the voting securities of which are owned by a person or agency other than the Corporation or the Resolution Trust Corporation

[Codified to 12 U S C 1831o(j)]

[Source Section 2[38(j)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by section 131 (a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1994

(k) REVIEW REQUIRED WHEN DEPOSIT INSURANCE FUND INCURS MATERIAL LOSS --

(1) IN GENERAL -- If a deposit insurance fund incurs a material loss with respect to an insured depository institution on or after July 1, 1993, the inspector general of the appropriate Federal banking agency shall --

(A) make a written report to that agency reviewing the agency's supervision of the institution (including the agency's implementation of this section), which shall --

(i) ascertain why the institution's problems resulted in a material loss to the deposit insurance fund, and

(ii) make recommendations for preventing any such loss in the future, and

(B) provide a copy of the report to --

(i) the Comptroller General of the United States,

(ii) the Corporation (if the agency is not the Corporation),

(iii) in the case of a State depository institution, the appropriate State banking supervisor, and

(iv) upon request by any Member of Congress, to that Member

(2) MATERIAL LOSS INCURRED -- For purposes of this subsection

(A) LOSS INCURRED -- A deposit insurance fund incurs a loss with respect to an insured depository institution --

(i) if the Corporation provides any assistance under section 13(c) with respect to that institution, and --

(I) it is not substantially certain that the assistance will be fully repaid not later than 24 months after the date on which the Corporation initiated the assistance, or

(II) the institution ceases to repay the assistance in accordance with its terms, or

(ii) if the Corporation is appointed receiver of the institution, and it is or becomes apparent that the present value of the deposit insurance fund's outlays with respect to that institution will exceed the present value of receivership dividends or other payments on the claims held by the Corporation

(B) MATERIAL LOSS -- A loss is material if it exceeds the greater of --

(i) \$25,000,000, or

(ii) 2 percent of the institution's total assets at the time the Corporation initiated assistance under section 13(c) or was appointed receiver

(3) DEADLINE FOR REPORT -- The inspector general of the appropriate Federal banking agency shall comply with paragraph (1) expeditiously, and in any event (except with respect to paragraph (1)(B)(iv)) as follows

(A) If the institution is described in paragraph (2)(A)(i) during the 6-month period beginning on the earlier of --

(i) the date on which the institution ceases to repay assistance under section 13(c) in accordance with its terms, or

(ii) the date on which it becomes apparent that the assistance will not be fully repaid during the 24-month period described in paragraph (2)(A)(i)

(B) If the institution is described in paragraph (2)(A)(ii), during the 6-month period beginning on the date on which it becomes apparent that the present value of the deposit insurance fund's outlays with respect to that institution will exceed the present value of receivership dividends or other payments on the claims held by the Corporation

(4) PUBLIC DISCLOSURE REQUIRED --

(A) IN GENERAL -- The appropriate Federal banking agency shall disclose the report upon request under section 552 of title 5, United States Code, without excising -

(i) any portion under section 552(b)(5) of that title, or

(ii) any information about the insured depository institution under paragraph (4) (other than trade secrets) or paragraph (8) of section 552(b) of that title

(B) EXCEPTION -- Subparagraph (A) does not require the agency to disclose the name of any customer of the insured depository institution (other than an institution-affiliated party), or information from which such a person's identity could reasonably be ascertained

(5) GAO REVIEW -- The Comptroller General of the United States shall, under such conditions as the Comptroller General determines to be appropriate, review reports made under paragraph (1) and recommend improvements in the supervision of insured depository institutions (including the implementation of this section)

(6) TRANSITION RULE -- During the period beginning on July 1, 1993, and ending on June 30, 1997, a loss incurred by the Corporation with respect to an insured depository institution --

(A) with respect to which the Corporation initiates assistance under section 13(c) during the period in question, or

(B) for which the Corporation was appointed receiver during the period in question, is material for purposes of this subsection only if that loss exceeds the greater of \$25 000,000 or the applicable percentage of the institution's total assets at that time, set forth in the following table

For the following period percentage is	The applicable
July 1, 1993 - June 30, 1994	7 percent
July 1, 1994 - June 30, 1995	5 percent
July 1, 1995 - June 30, 1996	4 percent
July 1, 1996 - June 30, 1997	3 percent

[Codified to 12 U S C 1831o(k)]

[Source Section 2[38(k)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992, as amended by section 106(d) of title I of the Act of October 19, 1996 (Pub L No 104-316, 110 Stat 3831), effective October 19, 1996]

(l) IMPLEMENTATION --

(1) REGULATIONS AND OTHER ACTIONS -- Each appropriate Federal banking agency shall prescribe such regulations (in consultation with the other Federal banking agencies), issue such orders, and take such other actions as are necessary to carry out this section

(2) WRITTEN DETERMINATION AND CONCURRENCE REQUIRED -- Any determination or concurrence by an appropriate Federal banking agency or the Corporation required under this section shall be written

[Codified to 12 U S C 1831o(l)]

[Source Section 2[38(l)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1992]

(m) OTHER AUTHORITY NOT AFFECTED -- This section does not limit any authority of an appropriate Federal banking agency, the Corporation, or a State to take action in addition to (but not in derogation on that required under this section

[Codified to 12 U S C 1831o(m)]

[Source Section 2[38(m)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19 1994

(n) ADMINISTRATIVE REVIEW OF DISMISSAL ORDERS --

(1) TIMELY PETITION REQUIRED -- A director or senior executive officer dismissed pursuant to an order under subsection (f)(2)(F)(i) may obtain review of that order by filing a written petition for reinstatement with the appropriate Federal banking agency not later than 10 days after receiving notice of the dismissal

(2) PROCEDURE --

(A) HEARING REQUIRED -- The agency shall give the petitioner an opportunity to

--

(i) submit written materials in support of the petition, and

(ii) appear, personally or through counsel before 1 or more members of the agency or designated employees of the agency

(B) DEADLINE FOR HEARING -- The agency shall --

(i) schedule the hearing referred to in subparagraph (A)(ii) promptly after the petition is filed, and

(ii) hold the hearing not later than 30 days after the petition is filed, unless the petitioner requests that the hearing be held at a later time

(C) DEADLINE FOR DECISION -- Not later than 60 days after the date of the hearing, the agency shall --

(i) by order, grant or deny the petition,

(ii) if the order is adverse to the petitioner, set forth the basis for the order, and

(iii) notify the petitioner of the order

(3) STANDARD FOR REVIEW OF DISMISSAL ORDERS -- The petitioner shall bear the burden of proving that the petitioner's continued employment would materially strengthen the insured depository institution's ability --

(A) to become adequately capitalized, to the extent that the order is based on the institution's capital level or failure to submit or implement a capital restoration plan, and

(B) to correct the unsafe or unsound condition or unsafe or unsound practice, to the extent that the order is based on subsection (g)(1)

[Codified to 12 U S C 1831o(n)]

[Source Section 2[38(n)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253), effective December 19, 1994

(o) TRANSITION RULES FOR SAVINGS ASSOCIATIONS --

(1) RTC's ROLE DOES NOT DIMINISH CARE REQUIRED OF OTS --

(A) IN GENERAL -- In implementing this section, the appropriate Federal banking

agency (and, to the extent applicable, the Corporation) shall exercise the same care as if the Savings Association Insurance Fund (rather than the Resolution Trust Corporation) bore the cost of resolving the problems of insured savings associations described in clauses (i) and (ii)(II) of section 21A(b)(3)(A) of the Federal Home Loan Bank Act

(B) REPORTS -- Subparagraph (A) does not require reports under subsection (k)

(2) ADDITIONAL FLEXIBILITY FOR CERTAIN SAVINGS ASSOCIATIONS -- Subsections (e)(2), (f), and (h) shall not apply before July 1, 1994, to any insured savings association if --

(A) before the date of enactment of the Federal Deposit Insurance Corporation Improvement Act of 1991 --

(i) the savings association had submitted a plan meeting the requirements of section 5(t)(6)(A)(ii) of the Home Owners' Loan Act, and

(ii) the Director of the Office of Thrift Supervision had accepted the plan,

(B) the plan remains in effect, and

(C) the savings association remains in compliance with the plan or is operating under a written agreement with the appropriate Federal banking agency

[Codified to 12 U S C 1831o(o)]

[Source Section 2[38(o)] of the Act of September 21, 1950 (Pub L No 797, 64 Stat 882), effective September 21, 1950, as added by section 131(a) of title I of the Act of December 19, 1991 (Pub L No 102-242, 105 Stat 2253) effective December 19, 1992]

## **ANNEX V 1 Philippine Banking Sector—Market Trends, Challenges and Outlook**

The peso has devalued by as much as 40% since July 1997, interest rates have increased substantially and non-performing loans have also started to pick up. Philippine banks are suffering from the same problems as their regional counterparts. There are signs of asset quality deterioration and slowing loan growth. However, one major difference is that Philippine banks have a relatively better operating environment and stronger capital base. Moreover, on a comparative basis, the magnitude of the Philippine banks' problems are not as huge compared to their counterparts in the region.

In this report, there has been a discussion of the operating environment, the magnitude of the banking problems, and the recapitalization needed to restore stability in banking systems in Indonesia, Malaysia, Thailand and the Philippines. Also there was a discussion on the future trends and challenges that will be faced by the Philippine banking sector. This annex complements those analyses by offering a brief overview of the outlook for the Philippine banking sector.

### **Challenges facing the Philippine banking sector**

#### **1) Asset Deterioration**

Presently, the main concern for Philippine banks is the growth in problem loans or non-performing loans (NPLs). In August 1998, commercial banks saw their NPLs surge by 210% year-on-year (YoY) to P166.2 bn or about 10.5% of total loans of the system. However, this ratio is still low compared to its peak in the 1980s. The current NPL ratio is the highest since 1985 when bank NPLs peaked at 22.6% (around the time the Philippines declared a debt moratorium and the economy suffered its worst recession since World War II). Bank NPLs have grown consistently in double-digit rates month-on-month as a result of the volatile exchange rate and interest rate environment since September of last year. However, this trend was bucked in June 1998, when NPLs fell slightly—down 0.4%—due to a seasonal rise in loan demand.

Surprisingly, total loans in June surpassed the end-1997 level for the first time this year by growing 2% mainly due to seasonal factors and declining interest rates (from 25%-30% in 1<sup>st</sup> quarter 1998 to 16%-21% in 2<sup>nd</sup> quarter 1998) There are some indications that banks are starting (or at least willing) to lend again, such as

- ◆ the resumption of television and print ad campaigns by different banks on consumer financing,
- ◆ trade finance are picking up again as firms start their inventory build-up for the coming Christmas season, and
- ◆ real interest rates are declining since January

However, the jump in loan demand in end-June may not be sustained going forward as evidence of a worsening macroeconomic environment (actual real GDP fell by -1.2% 2<sup>nd</sup> quarter 1998 vs -0.8% consensus forecast) More likely, loan demand would be flat to -5% by the end of the year, as the domestic economy enters a recession phase in 2<sup>nd</sup> half 1998

According to a SG Securities Research on Philippine banks, empirical evidence shows that a stable foreign exchange rate is the key to arresting the growth in bank NPLs Hence, the recent round of currency weakness in the region together with an economy on the brink of a recession will have an adverse impact on loan growth and asset quality Bank NPLs are mainly composed of peso loans (e.g., consumer financing, working capital loans of SMEs, etc.) and unhedged dollar borrowings (a small portion are property-related loans) and banks will edge away from further lending in the face of expected economic slowing

According to Bangko Sentral data, dollar-denominated loans (i.e., Foreign Currency Deposit Unit [FCDU] system) have fallen sharply by as much as 31% since July 1997 In terms of percentage share to total loans, FCDU loans were down from over 27% in mid-1997 to 24% as of April 1998 BPI is the most prudent among its peers in this area with a low 7.2% of total loans Based on our survey, the top-tier commercial banks have reduced their FCDU loan levels since the peso devaluation in mid-97, and encouraged some borrowers (those who don't have natural dollar receipts) to switch to peso-

denominated loans. These top-tier banks have managed to keep the unhedged portion of their FCDU loan portfolio to a minimum at around 15%-20%. However, banks may be faced with a double-whammy as some of their unhedged dollar loans financed property developers such as RJ Ventures (comprises a third of PNB's unhedged dollar loans), C&P Homes, Mondragon, and Belle Corporation, to name a few. Thus, we expect a continued rise in bank NPLs in the coming months as the economy goes into a tailspin and property prices come down further.

Notably, there has been significant increase in foreclosed collaterals attending the rise in non-performing assets. With loan asset quality on the decline, Philippine banks have no choice but to initiate foreclosure of assets. Philippine banks have the edge over other banks in the region in terms of their ability to foreclose collaterals. For example, banks are able to foreclose assets even with one month of default on interest payments. To avoid reporting an account as NPL, some banks expedite the foreclosure of collaterals. The surge in the level of real and other properties owned or acquired (ROPOA) assets is an indication of this trend. There are some advantages to this strategy like savings on loan-loss provisioning. However, loan-loss provisioning by banks is still not tax deductible unlike in other banking markets, hence, banks are discouraged from aggressively increasing their loan-loss reserves. Government regulators have recently announced that banks' loan-loss provisions will be treated as business expenses and, therefore, tax deductible by end-1999. Moreover, another reason for the growth in ROPOA is the banks' relatively high collateral coverage for NPLs of about 75%. The drawback of the growth in NPAs is the difficulty of banks to dispose of the foreclosed property, since banks cannot dispose the asset within a year (unless the borrower waives his right of first refusal). Asset prices will continue to go down in the coming months as banks will try to liquidate these assets in the shortest possible time.

## **2) Operating Environment**

The operating environment for the next six to twelve months is not encouraging. It is not surprising that banks are aggressively providing for loan-loss reserves since late last year. Loan-loss provisions of banks have jumped from P19.8 billion in August 1997 to P47.5 billion in August 1998, or a growth of 140% YoY. This means that banks are gearing up

for further peso weakness, higher interest rates, and a slump in loan demand which would push their NPLs higher. Based on recent trends, commercial banks' NPLs are expected to peak at 15% (or 43% higher from the end-August ratio of 10.5%) in the next two to three quarters. This expectation assumes the following parameters in the next twelve months:

- ◆ average exchange rate at P42/US\$1,
- ◆ average 91-day T-bill rate at 15%, and
- ◆ zero growth in total commercial bank loans

Alternatively, under a more bearish scenario on the peso, interest rates and loan demand will push NPLs higher. With a P45/\$1 average exchange rate, an 18% 91-day T-bill rate average, and a 10% contraction in total bank loans we would expect a 20% NPL ratio.

The probability of NPLs going beyond 20% is not high since the conditions in 1985 (when NPLs hit 22.6%) offers little comparison to the present macroeconomic and political environment. There are three compelling arguments for this:

- ◆ the economy will not experience a recession of -7% contraction in GDP similar to 1985,
- ◆ local corporates are not as highly-g geared compared to their counterparts in the region, and
- ◆ the Philippine financial sector is adequately-regulated having already undergone a restructuring program in the mid-80s

While it offers little consolation, Philippine banks are still well ahead of the worst performing banking systems in the region as measured by their NPLs: Malaysia (15%-18%), Singapore (9.5%), Korea (25%-31.5%), Thailand (25%-46%) and Indonesia (70%).

The recent rise in bank NPLs highlights the risk factors which continue to confront the Philippine banking sector. These high-risk factors are the following (together with the key assumptions for the NPL/default rate):

- ◆ unhedged dollar-denominated loans—15% of FCUDU loans,
- ◆ property-related loans, assumes 30% decline in property collateral values—26% of property loans,
- ◆ consumer-related financing such as auto loans, mortgage loans and credit card—18% of consumer-related loans, and
- ◆ other loans, which takes into account the over-capacity in the manufacturing sector—15%

The base case estimate of 15% peak NPLs for commercial banks by the second quarter of next year hinges on the three assumptions mentioned above, this peak NPL was arrived at by estimating the contribution to bank NPLs of high-risk lending segments. The breakdown of NPLs by segment is as follows:

- ◆ FCDU loans, P62.5bn,
- ◆ Consumer-related loans, P32bn,
- ◆ Property-related loans, P60.7bn, and
- ◆ Other loans such as loans to agriculture, services, retail, utilities and manufacturing firms, P79.8bn

Total bank NPLs was estimated to be around P235bn by the second quarter of next year, based on a flat growth in commercial bank loans P1.57 trillion this year.

### **3) Declining Profitability**

Albeit to a lesser degree, the first half 1998 results for Philippine banks indicate that they are also suffering the same problems as the other banks in the region—asset deterioration and shrinking net interest margins. At first glance, all the big banks showed an improvement in profitability by posting modest growth, except for PNB (down 36% YoY in net earnings). Yet, all is not as well as the moderate earnings growth would depict. A closer look shows that all the banks have reported an accelerated growth in non-performing loans, a squeeze on net interest margin (NIM), and a modest charge to loan-loss provisioning (LLP).

Most of the banks showed modest earnings growth in first half 1998 with the exception of PNB. MBT and BPI posted below average earnings growth of 4.2% and 4.7%, respectively, due to lower than expected provisioning charges in first half 1998. PCI led its peers with a respectable 8.6% YoY growth in net earnings. Meanwhile, PNB was the only bank that showed a decline in profitability with a 36% drop in net profits, as rising NPLs and LLP has cut into its profits. Given the recent round of currency speculation in the different Asian economies and the continued sluggishness of the domestic economy, there is a good chance that the operating environment in second half 1998 may be no different than first half 1998. The large-cap banks will likely show a significant drop in

net earnings this year, as rising NPLs in the near term would necessitate higher provision charges this year

Most commercial banks reported lower than expected LLP in first half 1998. Philippine banks usually wait for more information in second half 1998, such as peak NPLs before they book provisioning charges. Unfortunately, the amount of provisioning would depend on bank management's profit objectives. Usually, banks would book most of their profits in second half 1998, and by doing so, they can determine the level of loan-loss provisions they need to charge. With rising NPLs (unofficially at around 9.7%, as of end-June 1998), banks have little room to show higher profitability. Banks need to bite the bullet now, and strengthen their balance sheets to serve as a buffer to withstand the onslaught of further asset deterioration. And with the regulator's plan to allow banks to treat loan-loss provisions as tax deductible business expense by the end of 1999, this is a positive development since it will encourage banks to be more aggressive in provisioning for past-due accounts. Banks need to be reminded that earnings growth is not the "end all, be all" in these times of uncertainty. The order of the day for bank management is not to be too focused on earnings growth but to take a more proactive stance in their approach to rising past-due loans—such as higher provisioning charges to strengthen their balance sheets.

#### **4) Capital Adequacy**

Capital adequacy is measured by the ratio of risk assets to unimpaired capital. Under Section 22 of R.A. 337, risk assets are defined as total assets less cash, due from BSP and other banks, loans covered by hold-out, depreciated bank premises, mortgage loans, loans secured by CBCIs and deferred income tax. The minimum capital adequacy ratio is 10% (under the Bank for International Settlements [BIS] Basle framework, the statutory minimum is 8%). As of August 1998, the capital adequacy ratio of Philippine banks stood at 17%. This capital adequacy ratio is much higher compared to other banking sectors in the Southeast Asian region. The most recent data available for the other banking sectors in the region are the following:

- ◆ Malaysia, 11.8% (November 1996),

- ◆ Indonesia 10% (June 1996), and
- ◆ Thailand (December 1996)

Unlike its regional counterparts most of the Philippine banks will not require a huge amount of recapitalization since most of the top-tier banks have very high capital adequacy ratios. However PNB, which is presently the most adversely affected by the increase in NPLs, has a capital adequacy ratio of around 11%, which is significantly lower than the sector average of 15.5%. Going forward, PNB which reported an 14.5% NPL ratio in mid-November 1998, will most likely have a peak NPL of around 16%-17% by the end of this year. Hence, the likelihood of a recapitalization for PNB will come sooner than later. With the expected sale of the government's 45% equity stake in PNB in the next 18 months, the recapitalization question will most likely be addressed by the government's planned divestment from PNB.

### **Regional banking trends**

The Southeast Asian banking sector has now entered a painful process of recapitalization as a result of the lingering regional economic crisis. On the back of this crisis, banks in the region have suffered in varying degrees a massive deterioration in asset quality, a heavy debt burden (i.e., a combination of high levels of short-term dollar-denominated debt and local currency liabilities), interest margin squeeze, and deteriorating profitability. In the next two to three quarters, the Asian banking sectors' profitability and asset quality will continue to deteriorate further.

The overall outlook of Asian banking markets, particularly, Indonesia, Thailand, Malaysia, Singapore and the Philippines (i.e., the ASEAN-5) is still negative. However, these Southeast Asian banking sectors are at different stages of the economic crisis. Some banks have reached rock-bottom and are showing signs of modest recovery.

(Thailand) Some banks are deteriorating at an accelerated pace (Indonesia) Some banks are still deteriorating at a moderate rate (Malaysia and the Philippines) And other banks have just started to enter the crisis (Singapore) In terms of magnitudes, the problems being faced by Indonesian, Thai and to a certain extent Malaysian banks are huge, which will require government "bailouts" since the private sector and capital markets in general will not be able to shoulder the total cost of recapitalization In contrast, Singaporean and Philippine banks should be able to handle the crisis without having to rely heavily on government support

### 1) Indonesia

The Indonesian banking system is in dire straits, and it has yet to see the full impact of the economic crisis on the sector The Indonesian authorities have not yet figured out a clear path of banking reform, restructuring and recapitalization

Without external support or a public bailout program, no bank in Indonesia can survive, to say the least According to SG Securities Research, the total amount of recapitalization needed by Indonesian banks is around US30 billion, with peak NPL assumption of 75% for the whole sector At most, only 5% of the required capital will be from the stock market, majority or about 95% will most likely come in the form of public bailout program (i e , government take-over of banks) Hence, the survival of Indonesian banks is in the hands of the government After the crisis, the Indonesian banks will become highly concentrated as a result of the government-initiated consolidation or nationalization of banks Before the crisis, the decreasing market share of the top 10 banks reflected a strengthening of the banking structure, as less concentration leads to greater competition within the banking sector However, this trend is expected to reverse after the crisis, as the top 10 banks will account for 81% of total assets in the Indonesian banking sector

Most of Indonesia's private banks may have to give up their bank ownership to the Indonesian Banking Restructuring Agency (IBRA) The problems that have hit

Indonesian banks have been so devastating that no single bank could survive without any government support. The current banking and economic crisis may bring the Indonesian banking sector back to the pre-1983 era when the state banks dominated the whole sector. The domination of state banks, in the absence of able support by professional management, is likely to result in political interference in the state banks' credit policy. But, the Indonesian government's resources are very much limited by the foreign debt overhang, and the ability of state banks to absorb any further shock in the system will be very limited. Thus, the outlook for Indonesian banks remains very bleak, and political, as well as economic considerations will have to be taken into account in seeking solutions.

## 2) Thailand

The outlook for Thai banks is not encouraging in the near term as the adjustment to the massive currency depreciation and high interest rates continues. At the moment, most of the weak Thai banks are depending for their survival on the Financial Institutions Development Fund, a government guarantee fund. However, this government guarantee fund is only a short-term remedial measure, and further bank restructuring reforms is still required.

Presently, Thai banks are undergoing a consolidation with a sharp contraction in liquidity and a huge jump in NPLs following the economic crisis. The impact of the economic crisis was not evenly spread across the banking sector. Even though the Thai banking sector suffered in general, the six biggest banks were actually not as badly affected as the other smaller (and weaker) banks. As a result, the Bank of Thailand (BOT) was forced to intervene by directly infusing liquidity to the banking system. The BOT claim on banks grew from Bt26bn to Bt232bn. The BOT will tap long-term funds by issuing government guaranteed bonds, to ensure the recovery of the banking sector. However, with the difficult market conditions, it is not likely that the BOT will be able to obtain the whole funding from the bond market. The estimated total recapitalization requirement of Thai banks is around US\$10-15bn. Conservatively estimated, only about one-third of that amount can be raised in the capital markets, the remainder will have to be shouldered by the Thai government. This recapitalization amount is based on a peak NPL assumption.

of 40% for Thai banks. However, it is very difficult to ascertain when the banking sector's NPLs will actually peak.

### 3) Malaysia

For Malaysian banks, there is mounting pressure on banks' loan asset quality. According to SG Securities Research, the peak NPL ratio for Malaysian banks is forecasted to reach 26.3% this year. The Malaysian banking sector will need at least RM27bn in recapitalization to raise risk-weighted capital ratios back to 10%. The Malaysian government has come up with a strategy to recapitalize banks and resolve or alleviate the NPL problem, which includes the following:

- ◆ **Set up a Special Purpose Vehicle (SPV)** This SPV will recapitalize banks together with a joint public-private sector Steering Committee to restructure debts before they reach NPL status,
- ◆ **Set up an Asset Management Company** This company will acquire the NPLs of banks and remove them from their balance sheets, and help re-liquify the system, and
- ◆ **Central bank or Bank Negara review** This covers the cost of funds and interest rate pricing mechanisms of banks to ease the interest burden on borrowers.

### 4) Singapore

With the introduction of the ringgit currency controls plus the lingering regional crisis, Singapore banks (which are normally the safe-haven of investors in the region) are now faced with the same risks as the other banks in the region. Asset quality deterioration (rising NPLs) and declining profitability (increasing loan-loss provisioning charges) will adversely affect the Singaporean banking sector, albeit to a lesser degree. According to SG Securities Research, the peak NPL ratio for Singapore's banks is expected to be 7% this year. Loan-loss provision levels are enough to cover this peak NPL and the expected 45% fall in collateral values. Moreover, almost two-thirds of the Singaporean banks' provisions are general provisions, which indicates a significant buffer should asset deterioration further accelerate. However, the increased risk for the Singapore economy and the stock market from the ringgit controls will adversely affect the future outlook of Singaporean banks.

Overall, the Singapore banking sector will continue to be the most stable and most solid banking market in the Southeast Asian region and will not be faced with problem loans of the same as Indonesian, Thai and Malaysian banking sectors.

### **Medium-term outlook--The road ahead**

Long the laggard in Southeast Asia in terms of capital markets development, the Philippines is slowly catching up as a result of banking and financial reforms that were instituted in the past few years. The Philippine capital market has deepened, both in terms of the array of financial products offered in the financial market and growth in bank assets, stock market capitalization and debt market capitalization.

The preferred ways of raising capital in the Philippines are the following:

- ◆ bank borrowing,
- ◆ equity market financing, and
- ◆ debt securities financing.

Bank loans are the most common mode, followed by debt issuances and equity offerings. In 1997, some 82% of the P2.25 bn raised in domestic capital markets came in the form of bank loans. The stock market and the debt securities market accounted for 4.5% and 13.5%, respectively.

As the real economy grows, more capital will be needed as firms expand their capacity and new firms are set up. Compared to funds raised in the long-term capital markets (i.e., equity and bond markets), bank loans are more costly and short-term in maturity. With the volatile financial markets, corporations would prefer to raise capital in the equity and debt securities market, which can have access to long-term funds (i.e., insurance, pension and retirement funds, etc.). However, corporations cannot access the equity and debt securities market at the moment because of bad market conditions. Overall, raising capital in the Philippines is still very much dependent on bank lending.

Policymakers and market players agree that the capital market's contribution to the economy will depend on the quantity, quality, and efficiency of the financial services it provides. Without a dynamic and efficient capital market, financial intermediation can be both costly for investors and risky for creditors. In this light, financial regulators are now encouraging the use of a greater array of financial instruments (i.e., hedging instruments like swaps and forwards) and services to cater to the increasingly

sophisticated needs of clients' in terms of risk management, trade and project financing, and underwriting securities, among others

Financial liberalization policies implemented in the past few years have successfully created a more open and transparent financial environment in the banking sector. From now on, policymakers will have to focus their efforts on developing the capital market and on strengthening both the equity and bond markets. The equity and bond markets could play a very significant role in the country's economic development. The growth in capital market activities would complement the growth of the banking sector, developing a more efficient Philippine financial market. An efficient and dynamic capital market would facilitate the funding of the growing investment requirements that the Philippine economy will need to sustain its economic growth in the long term. Moreover, a well-functioning equity and debt securities market will allow market players better to manage market risks, improve liquidity, and reduce intermediation costs. Going forward, the growth of the long-term capital market also could induce the emergence of new and innovative hedging instruments such as financial derivatives.

In the medium term, the dependence on the banking sector for funding capital requirements will be diminished, albeit to a lesser extent compared in the past few years. The expected growth in infrastructure expenditures in the medium term will increase the demand for long-term and cost-effective capital financing. Hence, the share of bank lending in the total funding of capital should decline steadily. However, the structure of the capital markets will not be altered significantly and bank lending will continue to be the most common mode of funding capital.

In industrialized economies, firms fund their capital requirements through bond (or debt securities) issuance because large (or bulky) investments cannot easily be satisfied by bank lending, stock rights offerings, or internally generated funds. Bond floatations have some practical advantages like allowing corporations to retain control over management decision-making. On the other hand, emerging economies like the Philippines will still find equity financing (i.e. IPOs, stock rights issues, etc.) as a cost-effective way of

funding capital. There are currently 222 listed companies in the Philippine Stock Exchange, and the prospects for more medium-to-large sized companies (the PSE will put up a third board for small-and-medium sized enterprises [SMEs]) to go public are still good (as long as the general economy turns around and the regional market conditions improve)

This evolving characteristic of the financial environment is called financial disintermediation. Financial disintermediation describes the move from banking—particularly wholesale and corporate banking—into securitized capital markets. While disintermediation frequently carries a negative connotation, in this case it signals a healthy maturation of the Philippine financial market as long-term finance appropriately shifts to direct security issuance by corporate borrowers. With the return of the Philippines to the international voluntary capital markets in 1993, the government and the super “prime” corporate borrowers are increasingly able to satisfy their funding requirements directly through international bond issuances (i.e. Eurobond issues, Yankee bond issues, Samurai bond issues, convertible bonds, asset-backed securities, etc.). Moreover, corporate issued-commercial papers (CPs) and local currency denominated bond issues will become more acceptable and more frequent in the financial markets. Also, mutual funds will be siphoning bank deposits out of the banking system, and in turn equity and debt securities will serve as alternative investment vehicles for these funds. Exchange-traded debt securities (e.g., CPs, government securities such as T-bills, T-notes and T-bonds, etc.) and futures (including over-the-counter options) will grow rapidly in the future as the capital market deepens.

Going forward, securitization and capital market development will change the make-up and structure of financial markets. For securitization to happen, there will be a need to develop new financial instruments that will accelerate deepening and development of the equity and debt markets. As the equity and debt markets deepen, market players will increasingly need to hedge their positions against volatile market risks. This will spur the development of a secondary market in securities lending and borrowing market for equities and fixed income instruments, creating a range of derivative financial assets and

repo contracts. The framework for allowing "short selling" will pave the way for the emergence of securities lending and borrowing which is now currently being deliberated in Congress, under the proposed new Revised Securities Act.

Although "short-selling" may still be a dirty word in emerging Asia—where many blame the currency crisis on short sellers—the practice is growing both in developed and emerging markets. In turn, the equity/fixed income securities lending business is growing because for speculators to short an equity or fixed income security, another party who's long on the security has to lend it. The institution of a repo market for securities should deepen the capital markets and benefit from increased market liquidity and efficiency, and more importantly from a broader participation of investors, both local and foreign. Also, the repo market will likely increase interest from international and institutional investors who are already familiar with the repo mechanism in other major and emerging securities markets.

In major equity securities lending markets such as New York and Chicago in the United States and London in the United Kingdom, institutional investors are beginning to lend their securities more often. One of the emerging developments for the growth in securities lending aside from "speculative" short selling is the growth in convertible bond markets. For example, convertible bond holders often short the issuer's underlying security (either equity or fixed income) in order to hedge the bonds. And as convertible bond issuance has grown dramatically across markets, particularly emerging markets such as the Philippines, the need to borrow stocks from issuers has also grown. In the past few years, Philippine corporate issuers, mostly blue-chip companies like PLDT, Metrobank, Ayala Corporation, JG Summit, ICTSI, Filinvest, etc., have tapped the convertible bond market as an alternative to finance their capital requirements.

At present, the total outstanding Philippine corporate convertible bond issues (around 12 convertible bond issues) amounts to around US\$1.95 bn (or about P80 bn in local currency). Hence, the demand from investors both foreign and local for securities lending and borrowing facilities at the present time is very much growing to say the least, as

investors need financial instruments such as repo agreements to hedge their positions. This growing demand has resulted in the emergence of an "informal" repo market in the equities and government securities markets. The presence of an informal repo market creates legal, settlement, and counterparty risks on the part of the contracting parties with the absence of a legal and regulatory framework on repo agreements (e.g., the "master" legal repo agreements will protect the rights of the two contracting parties from any legal or counterparty risks).

Lastly, the usual concern expressed by regulators on repo agreements is that it could increase the volatility of stock/fixed income prices since the repo will facilitate greater leveraged activity in the security. According to a study by the Bank of England on the Gilt repo market in 1994,

"there is no indication that other securities markets where repo is permitted have experienced an increase in volatility as a result, nor does it appear that the gilt market has been insulated from volatility in the past year by the absence of generalized repo."

As mentioned earlier, government policy-makers are moving in the direction of allowing "short selling" and creating a framework that will allow securities borrowing and lending, and perhaps leading to the development of a functional and regulated repo market for securities.

## **ATTACHMENT 1 Responses to BSP Comments**

### **Section I—Changes keyed to comments**

#### Comment No 2 page 16

We have added some discussion on derivatives in the Philippines

#### Comment No 3 page 11

We have replaced Table I 3 with Tables I 3a and I 3b to show the amount of lending done by the trust department of commercial banks and added some comments in the text

#### Comment No 4 page 12

We have revised Annex I 3 and revised the text accordingly

#### Comment No 5 page 13

We have revised Table I 4 and the text to remove the effect of the exchange rate on the ratio of FCDU deposits and M3

#### Comment No 6 page 18

The banks interviewed for this study did not furnish the study team with time series data of the transactions and pricing of their forex corporations purchases and sales of foreign exchange

#### Comments Nos 7

This is addressed in Section I D and in Section II

#### Comment No 8

See cover letter and the proposed program to address these issues in Attachment 2

### **Section II—Changes keyed to comments**

#### Comment No 8

We have added some discussion about changes in demand for components of M3 and possible offsets and some discussion of previous theoretical studies concerning the effect of the use of derivatives on monetary aggregates

We have also added some discussion on this issue including comments on the literature on p 41-42

Comment No 9

We had added a paragraph discussing the consequences of altered auction amounts (p 30)

Comment No 10

We have added some discussion about the role of speculators in financial markets (p 31-32)

Comment No 11

We have rewritten the section on the evolution of financial derivatives in the Philippines based upon the newly supplied tables

Comment No 12 (p31-34)

We have rewritten the paragraph on peso-dollar forwards to reflect the corrected version of Table II-3 that BSP recently supplied

We have corrected the amount of fx options attributed to FCDUs (we think there may be a problem with the data since the resident and non-resident numbers are identical)

Comment No 13 (re p 34)

We have rewritten the paragraph on FX options so that the problem with the calculation of net exposure limits (i.e. omitting option positions) is clearer

We have added some discussion about foreign exchange markets and the effect of restrictions (p35-37) (We have eliminated the discussion about overseas workers, we have no data that would shed light on their role in foreign exchange markets)

We have added a paragraph on the role of speculators in financial markets

Comment No 14 (re p 35)

We have added some discussion of the risks that may be created by a growing derivatives market, that may offset part of the gain permitted by redistribution of business risk (p 39)

We have added a footnote dealing with the moral hazard issue (p 38)

We have added a comment on banks' exposure (p 38)

We believe that the Jochum & Kodres paper is dated 1998

Comment No 15 (re p 35-37)

Derivatives activity is not at the level where one could see effect on the monetary aggregates. We have added some additional discussion of the theoretical direction that is likely (see p 40)

Comment No 16(re p 37-38)

We have expanded the discussion and added some discussion of the literature(p 41-42)

**Section III—Changes keyed to comments**

Comment No 17, On the structure of the Philippine banking system(page 39)

All the suggested changes were adopted most with the language provided

Comment No 18, On the personal liability of regulators(page 41)

The language of the relevant regulation was incorporated as given. The discussion of the comparative uniqueness and intimidating nature of the practice was modified slightly but remains on point as before

Comment No 19 On the secrecy of bank deposits

The point was taken using some of the language provided

Comment No 20 Prompt corrective action

After reviewing the statutory language provided, the report discussion was amended to better explain the point of the discussion. Despite the Philippine statutory and regulatory progress on prompt corrective action, a more detailed statutory mandate is likely to be needed

Comment No 21 On page 42

All the suggested changes were made by adding new language or removing old language

Comment No 22 On page 43

All the suggested changes were made mostly with the language recommended

Comment No 23, On page 45

The recommendations were supplemented with some ideas for training on derivatives, risk based capital standards for derivatives, and on establishing options and futures exchanges. Details and guidelines on these subjects need more attention than this report can adequately address, and more practical attention. Various Philippine and international organizations can provide expertise on these subjects, including how other countries are dealing with derivatives. Getting the benefits of that expertise as training rather than another study or report could be very useful.

**Section IV—Changes keyed to comments**

Comment No 24

We are pleased that our study is consistent with ongoing work in the BSP.

Comment No 25.

Money demand functions would not directly address the issue of linkage between money growth and inflation. Even if money demand were reduced by financial innovations, as long as the relation between money and prices is stable, then that is sufficient for the results reported in the section to answer the question of the linkage.

**Section V—Changes keyed to comments**

Comment No 26

Note that this section reviews written studies which can only be abstracted with respect to what they contain. The discussion cannot be expanded to capture actions by the authorities beyond what has been reported. Nevertheless, we include in Annex V 1 an outlook for the Philippine banking sector, how it compares with other Southeast Asia banking sectors and commentary on the short and intermediate term for the broader financial sector, including the likely movements in the ratio to total loans of non-performing loans (NPL).

**Section VI—Changes keyed to comments**

Comment No 27

Agreed

Comment No 28

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The study does not recommend the use of new concepts of money. The study does present evidence on the issue of the broad aggregates which include non-monetary deposits (eg, M4 with FCDU), having a weaker relationship with inflation. While merely a conjecture, it is likely that an aggregate that included trust accounts (a non-monetary deposit) would be similarly weak.

Comment No 29.

The conclusions are not inconsistent. First, note that the assertion in Section I advances the possibility of undercutting the linkage due to the definitions of the aggregates. Section IV tests the aggregates, and reports that the narrow aggregates work better than the broad ones, there is no foundation for inferring that any of the aggregates is perfectly defined.

The finding that the narrow aggregates are more closely connected to inflation does imply that there is more information about inflation in their growth rates than in the broader aggregates.

Comment No 30, Findings and Recommendations

Suggestions for studies are included under several of the expanded recommendations, and a suggested program for training and modelling is included in Attachment 2.

**ATTACHMENT 2 Training and Modelling Program for BSP**

Training in the analytic methods used in this report can be provided to BSP staff. In particular, the questions comprising Comment 8 could form a natural structure for such a training program with BSP staff being instructed in the use of econometric software and working with Barents Group staff in the construction of a CGE model of the Philippine economy.

Following the analysis of the impacts of financial market innovations and derivatives on the feasibility of quantitative monetary policy, there are three substantive areas for further investigation and training of BSP research staff:

- 1 **Applied Econometric Methods** Research department staff would be trained in the analysis of monetary policy options of the form applied in Section IV of this report. A natural extension of this training would be to apply time series techniques for short-term forecasting of financial variables of interest such as the exchange rate and inflation.
- 2 **Financial Derivatives Analysis** Derivatives expose a bank to both market risk and credit risk. These risks need to be evaluated and combined with risks in other financial instruments. BSP would be trained in computing “market exposure” of portfolios that include derivatives. This would include some explanation of options—how to value them and how to combine them with positions in the underlying security. Swaps would also be explained. Credit exposures and particularly credit exposures of banks to major counterparties need to be computed. BSP staff would be trained in how to calculate these credit exposures and aggregate different instruments with the same counterparty.
- 3 **Competitive General Equilibrium (CGE) Modelling** CGE models provide for the analysis of structure of the economy so that the substitution among portfolio assets and the effects of policies *in the long run* can be assessed. The program would include the construction of a CGE model with the involvement of BSP staff. The long-run vantage of such a CGE model would allow informed choices between policies that will require significant time to evolve to a true equilibrium in Philippine financial markets. To estimate potential equilibria from liberalized financial policies also would require substantial data resources and, perhaps survey inputs to estimate representative objective functions and production functions.

Barents Group has provided applied economic analysis and econometric techniques to central banks in Central Asia (Kazakhstan, Kyrgyzstan, Uzbekistan), Ukraine, Egypt and Bosnia. We have also supported policy reform initiatives with forecast models for the Hong Kong Monetary Authority. Our staff and consultants are well experienced both in the teaching of techniques and in their application, several with long service in the US Federal Reserve System. The objectives under our multi-task programs have included applied econometric analysis and forecasting techniques for research department staff, the construction of integrated data bases to support monetary policy analysis, and implementation of training for mid-level managers.

For the BSP, we propose a program of applied instruction, modelling and forecasting along with the construction of a CGE model to analyze the long-term consequences of various policy stances regarding the market innovations and expanded use of financial derivatives. The training would involve hands-on applications of standard regression analysis and time-series forecasting techniques on Philippine data combined with further training in the financial analysis of derivatives. The program of econometric instruction would include developing facility with EVIEWS, a Windows-based econometric package that Barents Group has used in our central bank training programs. In parallel, and with involvement of BSP staff, we would construct a CGE model of the Philippine economy including its financial sector.

This program would be undertaken during a three to six month period beginning in late May of 1999. Barents Group has both the experienced staff to teach these techniques and funding vehicles to implement such a program. If this would be an attractive activity for the BSP to undertake, we can provide at the Bank's request, a detailed proposal of how such a program of training would be structured.

To address the questions in Comment 8, we believe that a CGE model is the appropriate mechanism. CGE models simulate the workings of a market economy and are unique in their capacity support analysis of the impacts of economic policy decisions, especially when the policy has economy-wide sectoral and welfare repercussions. They capture the interaction of various actors in the economy, including households (as consumers, workers and savers), firms (as producers, consumers of intermediate goods, and investors), government (as consumer and transfer agent), and the rest of the world (as consumers of exports, producers of imports and providers or recipients of international capital flows).

The main premise of CGE models is that "structure" matters. They explicitly incorporate the workings of a multisectoral, multi-market, general equilibrium system undergoing structural adjustment. The behavior of firms, consumers, factors of production, and the government are also modeled explicitly. Consistent with microeconomic theory, all agents are assumed to optimize within budget constraints. Indirect taxes and subsidies are incorporated in price definitions and affect relative prices. CGEs are unique in computing the trade-offs of a given policy decision.

### ***Real CGE Models***

In the CGE model, firms maximize their profits under their production technologies by choosing combinations of factor inputs. The behavior of each sector can be modeled to reflect the environment within which firms operate. Factors such as regulatory frameworks, oligopolistic/monopolistic market structures and increasing returns to scale can be explicitly modeled. Firms will maximize their profits under the constraints of their tax, subsidy and regulatory frameworks and the relative input, factor and output prices with which they are confronted. Private and public firms in all sectors will be accounted for and modeled separately. The price (both own and cross) elasticities of substitution and output are crucial here in two respects. They will change the input

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combinations of a given sector and affect the demand for the output of that sector by other sectors

Households save a portion of their income and spend the rest on the purchase of commodities so as to maximize their satisfaction from consumption. Again, changing incomes and relative prices will alter household budget expenses. The demand for goods and services will depend on the prices of the new tax/subsidy system and the own-price, cross-price and income elasticities of different types of households.

The economic actors make decisions according to the relative prices they encounter in the market place, and prices adjust until all markets clear and the economy is in equilibrium. Imported and domestic goods are treated as different goods with varying elasticities of substitution across sectors. This convention captures the qualitative difference between domestic and foreign goods. The exchange rate works like any other relative price in the system to clear the foreign exchange market subject to a current account balance of payments constraint.

The use of detailed inter-industry flow information allows modeling of the interaction between industries that can result from the change in relative prices of specific commodities or the level of demand. The technologies of industries (captured in the form of production functions) are the main building blocks of CGE models and determine the linkages between various industries. Unlike linear input-output models, CGE models are very flexible in incorporating all kinds of substitution possibilities among intermediate inputs, labor and capital.

The CGE model solves simultaneously for product and factor prices, exchange rates, and the quantities of goods and services produced and purchased at these prices. It also solves for all income flows, including wages, profits, household distribution of income, government revenue, public and private savings, and balance of payments. The CGE model simultaneously determines the equilibrium quantity and price sector in a consistent framework.

### *Introduction of the Financial Sector*

The exclusion of financial markets from real sector CGE models presupposes the functioning of smooth and efficient markets where asset market equilibria are determined by considering both return and risk. However, different countries have different levels of financial and capital market development, and hence different levels of market efficiency.

A CGE model of the Philippines can be developed incorporating the more important features of financial markets. Currency and interest-bearing deposits and loans would be introduced and the Central Bank and the banking sector would be explicitly modeled (the latter will allow the modeling of required reserves). Firms demand loans in order to finance their working capital and investment. Households demand money for transaction purposes, with their excess wealth put into time deposits. Interest rate clears the banking sector.

Two main linkages connect the real and financial sides of the economy, the interest rate determines the level of investment. The supply of credit affects sectoral output via the production function of firms. The innovations discussed in our study would then be modeled via their effects on the endogenously modeled variables, including the supply of credits, interest rate and exchange rates, among others.

By allowing the firms to reduce their risk, derivatives perform the function of completing the markets (in the sense of Arrow-Debreu), and bring the economy closer to the neoclassical paradigm where the effect of monetary policy is neutral. An important link between the real and financial sector that will be modelled is the credit financing of working capital. Monetary policy and changes in the financial sector products which modify the cost and availability of credit will affect aggregate supply, especially in economies with less developed financial intermediation. By modeling the financial sector of the economy the effects of innovations via changes in credit supply and commercial bank reserve requirements, among others, can be studied in the CGE model. Capturing the rigidities (as reflected in the credit financing constraint of the firms for example) in the pre-derivative world and parameterising the "incompleteness of the financial markets" and then removing some of these constraints, will allow us to calculate the effect of the financial innovations on the real side of the economy, including sectoral production, employment and GDP. We will also measure the economic welfare implications of the financial innovations.