A REAL MONETARY CONDITIONS INDEX FOR THE PHILIPPINES: IS IT USEFULL?

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1 INTRODUCTION

1.1. Background of the Study

Central banks are faced with a series of variables in the process of formulating and implementing monetary policy. This series of variables range from the ultimate target of policy, at one end, to the instrument of policy, at the other end, with operational target, intermediate targets, and indicators or information variables in the middle. At the root of this traditional framework is a fundamental requirement that a predictable and stable relationship between the instruments along with their intermediate or operational targets and the ultimate target exists. However, with the increasing liberalization of economies and globalization of financial markets, this framework has put to test central banks' credibility in coming up with a reliable policy framework to achieve its desired ultimate targets.

In the Philippine setting, the traditional framework of anchoring on monetary aggregates and thereby effectively using interest rates to achieve its primary objective of price stability has similarly suffered from serious re-assessment over the past few years. Behind this re-assessment were two major developments that occurred during the last twenty years.

One major development includes the various measures undertaken towards liberalization of economy along with the globalization of financial markets that all affected the country's financial system in several aspects. These were strengthened on 24 August 1992 when Circular No. 1353 was issued by the Central Bank of the Philippines (CBP) liberalizing foreign exchange regulations throughout the country.[1] These reforms that were introduced by the International Monetary Fund (IMF) and World Bank (WB) as part of their Structural Adjustment Program in early 1980s and that have led to the resurgence of capital inflows in the 1990s, have gradually changed the landscape of the conduct of transactions in the domestic economy, broadened the options for sourcing liquidity, and introduced new dimensions to the conduct of monetary policy.

[1] Under Circular No. 1353, foreign exchange may be freely sold and purchased outside the banking system. It also allows foreign exchange receipts, acquisitions or earnings to be deposited in foreign currency accounts, whether in the Philippines or abroad, or brought out of the Philippines. As regards foreign loans and foreign investments that will eventually require servicing with foreign exchange purchased from the Philippine banking system, proceeds of these loans and investments will continue to be sold for pesos to the authorized agent banks of the CBP.

The other major development was what broke out in the East Asian region in the middle of 1997 that was felt in the Philippines by way of a plunging peso. The domestic currency was relatively stable at P26.30/US$-P26.40/US$ at the beginning of 1997 until 11 July. On 12 July 1997, the Philippine peso was allowed to embrace the true sentiments of the market, and had depreciated by more than 50 percent at the end of the year. The rise in interest rates to arrest further depreciation did not help the peso. Soon after, output growth slowed, unemployment rose, while significant pressure affected the banking system.

On the monetary front, these developments led to shifts in demand for money and the money multiplier that eventually made monetary targeting a less reliable anchor for monetary policy as well as transmission mechanism and the signal variables. While shifts in demand for money have already been seriously assessed during the last few years, the transmission mechanism and signal variables of monetary policy remains to be re-visited.

Along these lines, this paper basically argues that an understanding of the transmission process is necessary to the appropriate design and implementation of monetary policy. Philippine monetary authorities need to be alert to the impact of changes in the structure of the economy as these changes tend to alter the economic effects of a given monetary policy measure. This paper further argues that in particular there is a need for monetary authorities to be eclectic in monetary policy management**.** This requires introducing additional indicator of monetary policy stance aside from the traditional interest rate to include exchange rate movements. Together, these indicators may well represent a specific Monetary Conditions Index (MCI) for the Philippines that could serve as comprehensive measure of domestic monetary conditions in the face of a more liberalized economy.

1.2. Statement of Research Problem and Working Hypotheses

The main question this paper intends to answer is whether MCI could be a useful short-run indicator of domestic monetary conditions for the Philippines in the face of a more liberalized economy and globalized financial market.

This research question is guided by the following working hypotheses.

- First, the MCI provides a useful short-run measure of domestic monetary conditions in a more open economy. Indicators such as bank lending rate and peso-dollar exchange rate are argued to well represent domestic monetary conditions.
- Second, it is also hypothesized that the usefulness of MCI could be gleaned from its ability to contain information on the likely behavior of an important indicator of real economic activity, the output gap.
- And third, while MCI provides a useful indicator of domestic monetary conditions, it is should be used carefully and alongside other indicators of credit growth, other domestic asset prices such as bonds, stocks and real estate as well as fiscal policy in monetary management. A comprehensive assessment of the situation would necessarily need to take these issues into account. Only then it would be possible to have a coherent interpretation of events and firm base for policy decisions.

1.3 Objectives of the Study

The study will generally seek to address the following concerns:

- To provide a working knowledge of the Philippine monetary framework, its objectives, targets (intermediate and operating targets) and instruments as well as the main issues on monetary policy formulation that could help analyze Philippine MCI;
- To provide a basic and clear knowledge of the economics behind MCI that could serve as a theoretical or conceptual framework in the construction of Philippine MCI;
- To compute a broader measure of domestic monetary conditions for the Philippines and evaluate its usefulness, likely effects to monetary policy process and to the overall economy as well as some caveats regarding its use;
- To critically analyze its use and compare it with the experiences of other countries adopting similar schemes for the purpose of extracting insights and lessons for policy formulation; and
- To derive policy implications on monetary policy management and propose policy measures regarding its operation, particularly as to whether the index could indeed represent domestic monetary conditions.

1.4 Significance of the Study

The attainment of these objectives will certainly benefit Philippine policymakers, in particular the Bangko Sentral ng Pilipinas (BSP)[2] which is primarily tasked with provision of among other things policy directions in the areas of money, banking and credit as well as overseeing and implementing monetary and financial program with the IMF. Specifically, the proposed MCI along with policy measures suggested in this study may be considered by the BSP as an alternative framework with the end view of coming up with an improved and more effective monetary policy strategy.

The study can also be useful to the country's legislators, particularly the House of Representatives' Committee on Bank and Financial Intermediaries, as the analytical evaluation of the proposed MCI and its likely effects to the overall economy can serve as valuable inputs in their deliberations. This is in line with the decision of the House of Representatives last 7 July 1999[3] to prioritize a measure seeking to amend the General Banking Act or the Central Bank Act to keep pace with the increasing globalization of financial markets.

In the international scene, findings and policy implications to monetary formulation will be useful to countries of South East Asian Central Banks (SEACEN) which are continuously seeking for broader measure of domestic monetary conditions.

The study is made doubly significant by the fact that there is no known comprehensive study that lays out MCI as broader measure of domestic monetary conditions in the Philippines, thereby pioneering in lending support or evidence to a lot of theorizing on the possible or potential consequences of such measure on the macroeconomy. And this is conducted at a time when it is most needed considering the currentness of the issues surrounding the MCI that emerged during the last few years.

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[2]The Bangko Sentral ng Pilipinas (BSP) is the central bank of the Republic of the Philippines. The BSP was established as an independent central monetary authority pursuant to the Philippine Constitution and the New Central Bank Act of 1993 as part of the restructuring of the old Central Bank of the Philippines (CBP), which was originally established in 1949. The Act was passed by Congress on 10 June 1993, approved by President Fidel Ramos on 14 June 1993, and took effect on 3 July 1993 which will enjoy fiscal and administrative autonomy in the discharge of its mandated responsibilities.

[3] Philippine Star, 7 July 1999, at the net, http://www.philstart.com/datedata/7Jul.

1.5 Scope and Delimitation of the Study

The conduct of analysis is limited to the available and consistent data on macro-economic and monetary indicators from January 1989 to June 1999, a period spanning 126 months. Much of the data contained in the study are generated from secondary sources, specifically the BSP Statistical Bulletin and Selected Philippine Economic Indicators.

As far as the MCI is concerned, the indicators include those that are directly controlled or are directly affected by BSP's policy measures. Hence, MCI will not fully reflect the overall stance of monetary policy. Indicators related to other domestic asset prices[4] as well as fiscal policy will not be dealt with. Furthermore, MCI focuses on demand side management and is assumed to be useful in the short-run, not in the long-term.

It is also important to note that while MCI would be a useful indicator of domestic monetary conditions, it is also subject to some limitations. There could be a number of issues (such as political and institutional in nature) that may be relevant for a particular country at a particular moment in time that are not captured in MCI. While all these issues make equally fascinating subjects for exploration, they would in themselves necessitate comprehensive treatments and qualify as topics for separate research. These tasks will be left as a challenge to extend the scope covered and improve the methodology used in this study.

1.6 Research Design and Methodology

This paper is essentially designed to provide a theoretical and empirical basis for the construction of MCI. For the qualitative part, reference is made to available literature on the subject while to a sufficient extent, quantitative analysis of secondary data, mostly statistics based on monthly reports and other selected economic indicators, is conducted.

The second chapter evaluates the Philippine monetary policy framework from 1986 up until 1999. This chapter highlights the objectives, intermediate and operating targets and instruments of monetary policy as well as the practice of targeting during

[4] Include bonds, stocks and real estate prices.

the review period. Implications of the increasing globalization of financial market to monetary policy framework will also be assessed.

The third chapter deals with the economics behind MCI. The current views on monetary policy transmission along with its significance to monetary policy process and overall economy are presented. It also features comparative survey of MCI being adopted by Canada, New Zealand and Norway and other institutions along with criticisms raised against its use.

The empirical design proceeds first with discussions on the indicators that typically constitute MCI. The intention of an MCI is to provide some sort of a gauge as to what influence the stance of monetary policy is having on the economy. MCIs are normally computed on the basis of the effects on excess demand rather than the inflation. In part this reflects the fact that MCIs were originally derived using the parameters of a simple IS-curve.[5] Tracing then the effects through to inflation requires a more complete model.

MCIs are motivated from the standard Keynesian open economy framework that characterizes the aggregate demand side of the economy as being a function of, among other things, the real exchange rate and real interest rates. The aggregate supply part of the economy – the price equation - typically has the price of non-tradeables being adjusted according to expectations of inflation and an output gap (or unemployment gap), and prices of tradeables determined by world prices and the exchange rate.[6]

There are a variety of conceptual ways in which the MCI could be measured. It could be constructed in terms of the effects of both the interest and exchange rates on aggregate demand or prices. The original version of MCI is discussed in Freedman (1995) and explored further in Eika et al (1996). This version of MCI is patterned after that of Bank of Canada (Boc).

1. Nature of variables. The MCI can be calculated in real or in nominal terms. Because of the lag in measuring real effective exchange rate, some uses nominal variables in constructing MCI. However, Lim (Fund memorandum, unpublished) and

[5] Mayes, D., and M. Viren, "A Monetary Conditions Indicator for the EURO Area," Bank of Finland, 1998, p. 3.

[6] Stevens, G.R., "Pitfalls in the Use of Monetary Conditions Indexes," Reserve Bank of Australia Bulletin, August 1998, p. 35.

Gonzalez-Hermosillo and Ito[7] argued that for the relatively short term (for which the MCI is useful), the distinction is less important. Movements to the nominal interest rates and exchange rates are likely to generate similar movements in their real counterparts since the price measures that underlie the real MCI would change more gradually than would the nominal interest and exchange rates. However, over the long-term, it would be preferable to use real magnitudes to prevent the trend difference between foreign and domestic inflation from dominating the MCI.

2. Model of Aggregate Demand**.** The relative weights on the components of MCI are based on an econometric equation that is motivated from the standard open macroeconomy model where aggregate demand is a function of among other things interest rates and exchange rates. The model explaining aggregate demand through the IS-curve can be expressed in the following relationships:[8]

$$Y = -\alpha i - \beta e + \phi G + \delta y^* \qquad \text{(Equation 1)}$$

where, Y = aggregate demand
e = real exchange rate
i = real domestic interest rate
G = domestic government spending
Y* = foreign economic activity

Equation 1 shows that aggregate demand, which determines the level of domestic economic activity or output of domestic goods, is negatively related to the real exchange rate, negatively related to the real domestic interest rate and positively related to both levels of domestic government spending and economic activity in the countries overseas with which the domestic economy trades.

3. Weight of MCI. MCI is a linear combination of domestic interest rate and the exchange rate, less their values in a base period. Based on equation 1 and following demand pressures approach, the MCI can be written as follows:

[7] See Gonzalez-Hermosillo, Brenda and T. Ito, "The Bank of Canada's Monetary Policy Framework: Have Recent Changes Enhanced Central Bank Credibility?", IMF Working Paper WP/97/171, December 1997.

[8] Equation 1 is the reduced form of the standard approach to modelling the IS-curve within the IS-LM framework, that is from a system where, $Y = D + G + T$, where T is trade balance (which is a function of the exchange rate and foreign economic activity), D is domestic demand (which is a function of the interest rate) and G is exogenous.

$$\mathbf{MCI = \alpha\,(it\text{-}ib) + \beta\,(et\text{-}eb) + 100} \quad \text{(Equation 2)}$$

where,
- it = real domestic interest rate at current period
- ib = real domestic interest rate at base period
- α = relative weight of the effects of real domestic interest rate changes on Y.
- et = real exchange rate at current period
- eb = real exchange rate at base period
- β = relative weight of the effects of real exchange rate changes on Y.

The parameters α and β in equation 1 determine the weight in the MCI. The key parameter in MCI is the ratio β/α.

The units of measurement of the MCI being in terms of real exchange rate changes[9] can be defined as follows:

$$\mathbf{MCI = (1/\beta/\alpha)\,(it\text{-}ib) + (et\text{-}eb) + 100} \quad \text{(Equation 3)}$$

Thus, the MCI can be interpreted most simply as the percent change in real exchange rate equivalent to the combined change in the real interest and exchange rates since the base period.[10]

4. Base Year. The base year will serve as reference point and reflects some form of normality of the economy.

5. Interpretation. While the interpretation of an MCI remains controversial, it is now widely understood to mean the net effect on aggregate demand of changes in monetary policy. It does not seek to capture a direct relationship between monetary conditions and current inflation. The absolute level of the MCI has no real meaning – there is no absolute sense of "tightness" or "looseness", only relative to the chosen base year. Generally, if MCI is climbing, monetary policy is being tightened with respect to demand pressures. This implies that monetary conditions are tightened by either an increase in the interest rate or an appreciation of the exchange rate. Conversely, if MCI is declining, monetary policy is being loosened against demand pressures. This suggests

[9]Other normalization is also possible like in terms of real interest rate equivalent. However, this paper uses the real exchange rate equivalent as it shows larger relative impact on real GDP compared to real interest rate.

[10]See Freedman (1995), p. 75.

that monetary conditions are being eased by either a decline in the interest rate or a depreciation of the exchange rate. Moreover, since the MCI is always measured relative to a given base period, subtracting the MCI at two points of time gives a measure of the degree of tightening or easing between those two points.

The fourth chapter presents the construction of real MCI for the Philippines, some base year and weight simulations, operational considerations for guiding policy, analysis of estimated MCI and some caveats regarding its use.

The fifth chapter evaluates the usefulness of MCI as broad framework of domestic monetary policy based on the results of the empirical analysis, explores various policy recommendations, discusses its implications on the issue of monetary management while at the same time suggesting areas for improvement and further research.

1.7 Resume' of Related Research and Professional Literature

The rapidly growing literature on transmission mechanisms of monetary policy presented evolution from the traditional interest rate channels to exchange rates (Freedman, 1996)[11] and (Freedman, 1995)[12] and then to the so called credit channels (BIS Policy Paper,1997)[13] and (Mishkin, 1996)[14]. What these stories tell us is that certainly these mechanisms pose implications for how central banks might best conduct monetary policy. And while there is debate over the existence of a separate "credit" channel, attention is oftentimes focused on two basic channels – the interest and exchange rates.

Although there has been a proliferation of readings on the subject of MCI which happen to be fairly recent, these merely describe or discuss the mechanics of MCI in developed countries such as Canada, New Zealand, Norway and other European countries. For the individual country profiles of MCI, the best sources for the description

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[11] See Freedman, Charles, " The Use of Indicators and of the Monetary Conditions Index in Canada," 1996, at the net, http://www.bank-banque-canada.ca/english/res/herm-98.htm.

[12] See Freedman, Charles, "The Role of Monetary Conditions and the Monetary Conditions Index in the Conduct of Policy," Bank of Canada Review (Autumn), 1995.

[13] See Bank for International Settlements, "The Transmission Mechanism of Monetary Policy in Emerging Market Economies, Policy Paper No. 3, January 1998, at the net, http://www.bis.org/publ/plcy03.htm.

[14] See Mishkin, Frederic, S., "The Channels of Monetary Transmission: Lessons for Monetary Policy," National Bureau of Economic Research (NBER) Working Paper No. 5464, February 1996.

are those of BoC,[15] and Reserve Bank of New Zealand.[16] [17] Descriptions of other countries adopting MCI such as Norway[18] or have calculated MCI such as Australia, countries under the Monetary Union (EMU) and Thailand are found in the IMF[19] and Organization for Economic Cooperation and Development (OECD) publications[20], working papers,[21] journals[22], bulletins[23] and international conference materials.[24] A survey of related professional literature critically reviews the current Philippine monetary policy framework. The IMF Mission Team,[25] Stone[26], Houben[27] and BSP-Department of Economic Research (BSP-DER)[28] all indicate that financial infusion[29], an offshoot of successful macroeconomic stabilization' [30] greatly complicates policy by bringing money demand growth to levels far above that explained by standard macroeconomic

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[15] See Freedman (1996) and Freedman (1995).

[16] See Nadal-De Simone F., R. Dennis, P. Redward, "A Monetary Conditions Index for New Zealand," Reserve Bank of New Zealand Discussion Paper Series G96/2, July 1996.

[17] See Dennis, Richard, "A Measure of Monetary Conditions," Reserve Bank of New Zealand Discussion Paper Series G97/1, January 1997.

[18] Eika, Kari, Neil Ericsson, Ragnar Nymoen, "Hazards in Implementing A Monetary Conditions Index," Board of Governors of the Federal Reserve System, International Finance Discussion Paper No. 568, October 1996.

[19] IMF World Economic Outlook, May 1996.

[20] OECD Economic Outlook, June 1996.

[21] See Mayes, D., and M. Viren, "A Monetary Conditions Indicator for the EURO Area," Bank of Finland, 1998.

[22] See Peeters, Marga, "Measuring Monetary Conditions in Europe: Use and Limitations of the MCI," De Economist (Quarterly Review of the Royal Netherlands Economic Association), Volume 147, No. 2, June 1999, pp. 183-203.

[23] See Stevens (1998).

[24] See Hataiseree, Rungsun, "Monetary Conditions and Monetary Policy in Small Open Economies: Empirical Results for Thailand Under Floating Exchange Rate Regime," paper presented during the International Conference on A Macroeconomic Core of An Open Economy for Progressive Industrialization and Development in Asia in the New Millennium, Bangkok, Thailand, 16-18 December 1998.

[25] See IMF Background Paper on the Philippines, Staff Country Report No. 95/114, November 1995.

[26] Stone, Mark, "Financial Infusion and Exiting from a Money Rule," IMF Working Paper WP/98/31, March 1998.

[27] See Houben, Aerdt, "Exchange Rate Policy and Monetary Policy Strategy Options in the Philippines – The Search for Stability and Sustainability," IMF Paper on Policy Analysis and Assessment PPAA/97/4, May 1997.

[28] BSP-DER Memorandum to the Monetary Board, "On Expanding the Measure of Liquidity," Unpublished, 17 January 1997.

[29] Stone defines financial infusion as an episode of large, upward, and permanent shifts in money demand prompted by successful macroeconomic stabilization.

[30] Surges in money demand can also be triggered by rapid financial reform and lifting of financial reforms. See Tseng and Corker, "Financial Liberalization, Money Demand and Monetary Policy in Asian Countries," IMF Occasional Paper No. 84, July 1991.

indicators. This therefore suggests that the current monetary policy framework need some rethinking in the face of more liberal economy and globalized financial markets.

As far as the chapter on the Philippine MCI is concerned, the major reference used in describing the MCI are BSP Annual Reports, IMF Memorandum,[31] and a related paper on globalization and its impact on the Philippines.[32]

2 THE FRAMEWORK IN THE CONDUCT OF MONETARY POLICY AND THE PHILIPPINE POLICY FRAMEWORK

Over the past six years, liquidity and credit in the Philippines have surged to significant levels. This significant increase could be traced to notable capital inflows that came in with the liberalization of the economy in early 1990s. Generally, capital inflows are to be welcomed as they expand a country's access to real resources and depending on their form and how they are used can stimulate growth and economic development.[33]

However, the spill-over effects of "Tequila crisis" in 1995 and the currency crisis in the second half of 1997 that have hit the Philippine economy clearly proved that along with various important benefits, capital inflows bring with them painful risks. Even if inflows (short-term capital inflows) have been used "well", they can be abruptly reversed, imposing substantial costs to the economy. And huge inflows, regardless of their long-term impact, could complicate macroeconomic management in the immediate term.

On the monetary front, these changes in the landscape of financial environment entailed significant implications for the short-run stability of the demand for money, the money multiplier, the transmission mechanism and the signal variables. The Philippine monetary authorities were not spared from these complications as they pose implications on the transmission mechanism in one end and to the overall objectives of price stability and sustained growth on the other end. This indicates that a modified approach

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[31] Lim, Cheng Hoon, "Philippines: Monetary Conditions Index," Unpublished IMF Memorandum, 29 April 1998.

[32] Valdepeñas, Vicente Jr., "Globalization of Capital and Philippine Conditions," paper presented at the 7th National Convention on Statistics, Shangrila-la EDSA Plaza Hotel, Manila, Philippines, 2-4 December 1998.

[33] See Fischer, Stanley, "Capital Account Liberalization and the Role of the IMF," paper presented at the seminar, Asia and the IMF, Hong Kong, China, 19 September 1997.

in the design and implementation of monetary policy is needed since relying on just a single intermediate monetary indicator may no longer suffice.

This chapter focuses on framework in the conduct of monetary policy from a general perspective. Next it sets out the role of different variables in the Philippine policy framework along with its objectives, intermediate and operating targets and instruments of monetary policy, further explaining the practice of targeting in the Philippines and finally enumerating the challenges faced by monetary authorities in the face of increasing globalized finance.

2.1 A Framework For Conduct of Monetary Policy

During the past few years, the role of monetary policy as a tool to promote sustainable growth and inflation in the economy has been recognized compared to fiscal policy. Mishkin (1996) argues that fiscal policy has lost its appropriateness as a tool to stabilize the aggregate economy because of some doubts about the ability to time fiscal policy actions to obtain desirable stabilization outcomes as well as concerns about budget deficit. The resulting strategy is to leave stabilization of output and inflation to monetary policy. Monetary policy refers to actions of the Central Bank or Monetary Authorities (MA) aimed at helping achieve macroeconomic goals and is exercised by influencing financial factors such as the quantity of money and the level of interest rates.

Countries undertaking adjustment programs usually suffer from a broad range of economic problems. In a monetary economy, excessive growth in the money supply leads to high rates of spending on domestic or foreign goods. Given that domestic supply is essentially inflexible in the short-run, the former is likely to result in substantial inflationary pressures in the economy. To the extent that spending pressures are directed towards foreign goods, balance of payments pressures will ensue. Therefore, the task of monetary policy is to ensure that monetary policies are supportive of the liquidity requirements of growth while constraining the rate of inflation to the minimum level possible.

Figure 1 shows how central banks typically make use of a set of variables that play different roles in the conduct of monetary policy. For central banks to achieve the goals of monetary policy, it must be able to operate through variables which are directly under its control, called instruments, since goals are not directly controllable. But

rather than establishing a direct relationship between instruments and objectives, intermediate targets, operational targets and indicators or information variables are often considered.

An intermediate target is a variable that is closely linked to the ultimate target or goal of monetary policy and is influenced by changes in policy instruments. Freedman (1995) enumerated potential examples of intermediate target as monetary aggregate or credit aggregate, the exchange rate, and the rate of growth of nominal Gross Domestic Product (GDP).

The conduct of monetary policy is also influenced by operational target. Most central banks use short-term interest rate as an operational target. An operational target is different from intermediate target on several grounds. First, an operational target assumes that transmission mechanism to the ultimate target is faster than an intermediate target. For instance, the effect of changes in short-term interest rate is assumed to be faster compared with an intermediate target of say a monetary aggregate which tends to be spread out over a much longer period of time. The second distinction has something to do with the nature of the targets. The intermediate target is typically a nominal variable that could serve as an anchor to the system whereas an operational target could not serve as an anchor since it is directly controlled by the central bank. The third factor deals with the extent of control over this target. Central banks typically has operating target to be under its immediate control over intermediate target. Fourth, since operational target is directly under the control of the central bank the time lags over which it can decide is shorter than intermediate target. And fifth, the monetary policy sequencing starts with the operational variable to intermediate and finally to the ultimate target.

However, Freedman (1995) argues that while a central bank need an ultimate target and instrument, it need not have an intermediate or operational target in the conduct of monetary policy. Many countries like the United States have conducted monetary policy without an intermediate or an operational target. The link between the ultimate target and instrument rests on an indicator or information variable. This variable is assumed to provide some form of a leading or contemporaneous information about potential movements in the ultimate target but is normally not treated as a variable that could be controlled. An example is a certain interest rate spread or the spread between short-term and long-term rate that is assumed to contain information about future movements in real output growth.

2.2 The Philippine Monetary Policy Framework

2.2.1 BSP's Ultimate Target

Section 3 of Republic Act No. 7653 or the New Central Bank Act provides that the primary objective of the BSP is to maintain price stability conducive to a balanced and sustainable growth of the economy. The BSP is also tasked to promote and maintain monetary stability and the convertibility of the Philippine peso. In this connection, the BSP formulates and implements monetary policies to support the objective of price stability.

The BSP's framework for conducting monetary policy is based on the interplay of a set of policy variables, as follows: (1) the ultimate policy objective; (2) instruments of monetary policy; and (3) operating and intermediate targets. The interplay of these variables is seen in Figure 2 (The Philippine Monetary Policy Framework).

2.2.2 Instruments of Monetary Policy

To attain price stability, the actual movements of monetary aggregates (domestic liquidity or M3, base money or BM and reserve money or RM) must be maintained within program targets. Operationally, monetary targeting in the Philippines is undertaken through the use of various monetary policy instruments. Open market operations (OMO) as monetary tool involves the sale or purchase of securities by the BSP to withdraw or inject liquidity into the system in accordance with its primary objective of achieving price stability. BSP's open market instruments include lending and borrowing under the reverse repurchase facility, BSP bills, notes, bonds and holdings of Treasury securities. BSP's outstanding OMO as of end-May 1999 reached P79.4 billion (Table 1). Another instrument is reserve requirement which refers to a specific proportion of banks' deposit liabilities that must be held as reserves with the BSP. From a high of 25 percent in December 1990, commercial banks' total reserve requirement dropped to 12 percent in July 1999 (Table 2). Rediscounting is also a monetary tool that pertains to the process whereby BSP extends loans to banking institutions on a short-term basis against eligible papers of their borrowers. As of May 1999, BSP's outstanding regular rediscount amounted to P5.1 billion at an interest rate of 9.2 percent (Chart 1). The BSP may also use moral suasion. This refers to an intangible, yet persuasive power exercised by the BSP to influence the behavior of banks and the public towards the achievement of specific goals of monetary policy. This is utilized by the BSP under

conditions when it is felt that the existing market mechanisms can not adequately and promptly ensure the attainment of monetary targets and objectives.

The use of National Government (NG) deposits with BSP as monetary management tool involves an arrangement between proceeds of securities issued in the form of Treasury bills and Treasury Notes. Such deposits are placed in a fixed-term deposit account at prevailing market rates with the BSP. Coordination between monetary and fiscal authorities becomes critical when an unexpected revenue shortfall or surge in expenditures occur and the NG deems it necessary to withdraw from its cash balances with the BSP. As of end-May 1999, NG's deposit balances with the BSP amounted to P104.9 billion (Table 1).

2.2.3 Intermediate and Operating Targets

The BSP uses variables that stand between the ultimate target and policy instruments. It uses M3 as an intermediate target. Targeting M3 is anchored on a stable and predictable relationship between money, inflation and income. M3 is the sum of money in circulation and deposit liabilities of deposit money banks (DMBs) which include demand, savings, time deposits and deposit substitutes, excluding foreign currency deposits and NG deposits with the BSP.

The operating targets of the BSP are BM and RM. These were chosen as operating targets because of the degree of control exercised by the BSP over these variables, the availability of timely data on these variables and the direct link between these variables and M3.

RM is defined as the sum of currency in circulation and reserves of DMBs with the BSP. BM is defined as RM plus reserve-eligible government securities (REGS), reserves in the form of market-yielding Treasury bills and if there is any, reserve deficiency of DMBs. Through the control of these operating variables, the BSP indirectly influences the behavior of M3.

2.3 The Practice of Targeting in the Philippines, 1986-1999

2.3.1 Monetary Targeting

How the authorities formulate monetary policy stems from an understanding of monetary programming in the Philippines (Figure 3). Theoretically, monetary policy affects the price level through the Fisher equation, MV=PY, where M is money supply,

V is the income velocity of money and PY is nominal income or real income multiplied by the price level. Through this relationship, changes in money supply eventually feeds into changes in the general price level.

Using this framework, the BSP takes into account output growth and inflation targets, as set by economic planning authorities, and then using given velocities, sets about achieving the monetary targets appropriate to the income and price objectives.

BM and M3 are directly linked through the money multiplier. The link of both variables through the money multiplier summarizes the money creation process, which is relevant in understanding how monetary policy works. The money creation process starts with the printing and issuance of currency by the BSP. This enters into the financial system as cash holdings of banks or the general public. Part of the holdings of the general public are deposited with banks. Banks, after setting aside a portion for reserve requirements, lends out or invests the remaining deposits of the public along with part of their own cash holdings. These funds eventually find their way back to the banking system as deposits and the process continues. Through this mechanism, the contraction/expansion in M3 becomes a multiple of the contraction/expansion in BM.

Factors affecting base money are then projected. Major accounts such as net foreign assets (NFA) and net domestic assets (NDA) are targeted. The monetary authorities' net foreign assets account is based on the projected receipts and disbursement projections consistent with the balance of payments projections. NDA is projected based on the movements of NG deposit balances with the BSP, rediscounting budget, and BSP Net Income Position. BSP's open market operations are then derived.

Following the debt crisis in 1983 and the subsequent move to a floating exchange rate regime in October 1984, the monetary policy framework has been anchored on monetary aggregates with the end view to achieve lasting price stability and sustainable growth. This framework essentially requires a steady and predictable relationship between money and inflation. However, evidence shows that this relationship has broken down.

First, the rise in M3 in 1993 until 1995 has not fed into higher inflation (Chart 2). Funded mainly by significant pick up in credit extended by the monetary system, the relatively high year-on-year growth in M3 of more than 40 percent during the early part

of the 1995 failed to ignite significant surge in prices after eight to twelve months.[34] Though there were some fluctuations in price movements during the early part of 1996, partly reflecting spill-over effects of supply side developments, including the alleviation of power shortages and favorable harvests during 1994, and rising food prices from a drought during 1995, inflation rate dropped significantly to 5.2 percent at the end of 1996 and further down to 4.2 percent in May 1997.

Even simple scatter diagrams indicate that the relationship between M3 and inflation has changed. Figures 4a to 4c show the scatter plot of inflation rate and M3 growth along with the regression curve obtained by regressing the inflation rate on M3 growth (lagged by eight and twelve months) from January 1986 to May 1999. Scatter plots are further divided into two periods to include pre-liberalization period (January 1986 to December 1993) and post-liberalization period (January 1994 to May 1999). Figure 4b shows that prior to liberalization of the economy, higher M3 growth appears to accompany the rise in prices. However, Figure 4c suggests that this relationship has changed as the rise in M3 growth fails to show significant pick up in inflation rate. This is seen in a somewhat flatter regression curve compared to Figure 4b. What these scatter plots reveal is that the absence of a pickup in inflation from relatively high rates of liquidity growth marks a break in the past.

Second, detailed regression analysis confirms a breakdown in the relationship between money and inflation. This breakdown in money demand is supported by results of tests of the stability of the demand for money by the IMF Mission Team 1995[35],

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[34] According to regression estimates by the BSP-DER, most of the feedthrough from liquidity growth to inflation occurs within eight to twelve months.

[35] The standard money demand relationships leave unexplained a large portion of the level of liquidity since early 1994 as shown by the behavior of the residual or the error term. The error term fluctuated widely during the volatile mid-1980s, was generally negative during the late 1980s and turned positive during the early 1990s. In 1995, the error correction term has been positive and consistently large relative to history. These results were derived using a two-step approach and runs from first quarter 1981 and second quarter 1995. See IMF Background Paper on the Philippines, Staff Country Report No. 95/114, November 1995, pp. 30-33.

Stone (1995)[36] [37] and unpublished BSP-Department of Economic Research Memorandum (1997).[38] The three studies point to the effects of globalization as one of the driving forces behind this breakdown. This could be seen in Chart 3. Indicators of monetization include ratios of M3 and NDA of the monetary system to nominal GNP. Starting 1992, increasing liquidity mismatch has been shown as M3/GNP ratio behaved more modest than NDA/GNP, implying that most of the credit expansion was financed by net foreign monetary liabilities as seen by the significant upclimb from December 1993 to June 1997 (Chart 4).

2.3.2 Modified Monetary Targeting

Beginning the second half of 1995, it was felt that the effectiveness of monetary policy could be enhanced by complementing monetary aggregate targeting with some form of inflation targeting.

The monetary authorities modified their monetary policy approach placing greater emphasis on the price objective and less weight on the intermediate monetary target. The approach essentially allows BM targets to be adjusted upwards by the amount that international reserves exceed expected levels, as long as inflation stays within a targeted range. Broadly, this appears to be a prudent response to the new challenges posed by globalization by reducing the risk of reaching policy decisions based on projections using a weakened relationship between money and inflation.

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[36] Stone uses two simple demand money functions based on quarterly data from the first quarter of 1984 through the fourth quarter of 1993 (first demand function) and extended to fourth quarter of 1996 (second demand function) and includes independent variables such as broad money, consumer price index, real GNP and 91-day Treasury bill rate. The first demand function produces reasonable parameter estimates and a stationary residual while the second demand no longer produced useful estimates. See Stone, Mark, "Financial Infusion and Exiting from A Money Rule," IMF Working Paper No. WP/98/31, March 1998, pp. 12-15.

[37] See Debelle, G., Lim, C., "Preliminary Considerations of an Inflation Targeting Framework for the Philippines," IMF Working Paper No. WP/98/39, March 1998, p. 7 and Appendix 1.

[38] The long-run demand for money was estimated for second quarter 1986 to third quarter 1996 using a single-equation regression model with the log of real demand for money as the dependent variable and the logs of real GDP, CPI and the 91-day Treasury bill rate as explanatory variables. In addition, a dummy variable for 1993 was included to capture the impact of financial liberalization on the demand for money. Results showed that the coefficient of said dummy variable was positive and significant at the 10 percent level, suggesting that there was a structural break in the aggregate demand for money (an upward shift) during the period. See BSP-DER Memorandum to the Monetary Board, "On Expanding the Measure of Liquidity," Unpublished, 17 January 1997, p. 2 and Technical Appendix.

2.4 Implications to Present Monetary Policy Framework

What then could be gleaned from these changes? One key lesson is that broadly the integration of capital markets implies that monetary conditions in a given country can be affected quite substantially by developments elsewhere.[39] On a more substantive point, developments in monetary front showed that links between money supply and the ultimate objectives have been obscured, because the economic recovery has been accompanied by large shifts in money demand. These results show that the effects of globalization can greatly complicate policy by bringing money demand growth to levels far above that could be explained by standard macroeconomic indicators. This would mean that adherence to the traditional monetary aggregate targeting would result in a stance that is either too tight or too loose. Or the use of a strict monetary growth rule to attain macroeconomic stability may hang on too long to a rigid policy in the face of a sudden increase in money demand, and thereby, choke off growth by forcing up real interest rates. Alternatively, the BSP may overestimate the magnitude and duration of the upward shift in money demand, and modify monetary policy in a way that results in higher inflation or worse, in a loss of credibility.

But even the modified monetary targeting offers serious challenges given that inflation reacts to liquidity growth with variables lags. This would certainly entail uncertainty about the appropriate path of policy instruments consistent with a given inflation target. And this is even more dangerous if lags are long and therefore the danger that a prolonged and costly tightening would be needed to stem the impact of the excess liquidity growth on inflation.

These uncertainties suggest that monetary policy cannot be conducted in some sort of mechanistic way. But neither should one go for the other extreme and conclude that it is almost impossible to carry out a coherent policy in the face of all these uncertainties. These risks can be addressed by utilizing indicators other than prices that could serve as early warning signals of impending inflationary pressures. In practice, monetary authorities could monitor carefully the evolution of the exchange rate, domestic

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[39] Larsen, Flemming, "Global Economic and Financial Developments in the 1990s and Implication for Monetary Policy," speech delivered before the 27th Economics Conference (Possibilities and Limitations of Monetary Policy), Oesterreichische Nationalbank, 10-11 June 1999, Vienna, p. 4, at the net, http://www.imf.org/external/np/speeche/1999/061199.HTM.

interest rates, credit, international reserves – all of which will provide clues as to the adequacy of domestic monetary policy stance.

3 THE ECONOMICS BEHIND MONETARY CONDITIONS INDEX

Up until the 1980s, monetary conditions were viewed on the basis of a single or narrow range of indicators. The BSP in particular uses M3 as indicator of domestic monetary policy stance (Figure 5). But with a more open economy, Chapter II indicates that monetary authorities could monitor carefully the evolution of the exchange rate, domestic interest rates, credit, international reserves that could be potential indicators of broader domestic monetary conditions. To qualify as broader measure of domestic monetary conditions, such an indicator must expressly include among others key variables such as interest rate and the exchange rate which the traditional monetary policy framework left out in its explicit formulation. In addition, it must take into account the increasing liberalization of economies and globalization of financial markets whose pace has virtually altered the landscape of monetary policy formulation.

Over the past few years, Monetary Conditions Indexes (MCIs) have become popular in several countries as a way of talking about the stance of monetary policy in the face of a more open economy. Since the BoC began publishing its MCI (Freedman 1995) other central banks have followed. Both Sweden and Norway now publish MCIs. The IMF, in its World Economic Outlook (May 1996) published MCIs for Italy, Germany, France, the United Kingdom, Japan and the United States. The Reserve Bank of New Zealand (1996) published a bulletin article illustrating three MCIs for New Zealand economy and a paper estimating a New Zealand's MCI ratio (Nadal-De Simone, Dennis, and Redward (1996). Recently, Peeters (1999), Mayes and Viren (1998, Bank of Finland) and Hataiseree (1998, Bank of Thailand) made separate papers on how monetary conditions could be measured in Europe and Thailand.

While there are criticisms raised against the MCI (in particular in getting weights of both the interest and exchange rates), these are mainly confined in the technical level and could not in any way help explain the changing nature of monetary policy transmission.

This chapter provides the economics behind MCI and its significance to the monetary policy process and on the overall economy. This chapter ends with compara-

tive survey of how MCI is calculated and used in monetary policy formulation by other countries as well as main criticisms advanced against its use.

3.1 Current Views of Monetary Policy Transmission Process

3.1.1From Monetary Actions to Different Channels to Aggregate Demand

Economists and central bankers currently recognize four main monetary transmission paths in more liberalized economy: the interest rate, other domestic asset prices (bonds, equities and real estate), exchange rate and credit.

The most traditional channel of interest rate influence spending through a number of channels – the cost of capital, the incentive to save rather than to spend and the effects on wealth and cash flow. The main components of demand that are affected are housing, consumer spending on durables, business investment in fixed capital and inventory investment.[40] [41] The extent of the response of spending depends partly on how long the changed level of interest rates is expected to persist. The framework that involves the cost of capital works the following way: an expansionary monetary policy leads to a fall in real interest rates which lowers the cost of capital, causing a rise in investment spending (including housing) or purchases of durable goods, therefore leads to an increase in aggregate demand and a rise in output.

In this framework, the rise in interest rate leads to a reduction in the present value of durable goods and thus decreases demand. Conversely, a lower interest rate increases the present value of such goods and thus increases demand. Implicit in this framework is the mechanism that spending that is sensitive to interest rate changes is affected by changes in the marginal cost of borrowing.

Furthermore, changes in interest rates also lead to changes in average rates on outstanding contracts and in turn increase over time as old contracts are renegotiated. Changes in interest rate also affect other types of rates such as deposit rate that could consequently change the average deposit rate. These changes in average deposit rate will affect the income and cash flow of borrowers and lenders that could have large im

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[40] Duguay, Pierre, "Empirical Evidence on the Strength of the Monetary Transmission Mechanism in Canada: An Aggregate Approach," Bank of Canada, 1996, p. 89, at the net, http://www.bank-banque-canada.ca/english/res/herm-98.htm

[41] Thiessen, Gordon G., "Uncertainty and the Transmission of Monetary Policy in Canada," Bank of Canda, 1996, p. 10, at the net, http://www.bank-banque-canada.ca/english/res/herm-98.htm

pact on aggregate demand.

Changes in the interest rate channel also affect the level of other domestic asset prices. When monetary policy lowers return to holding money by lowering interest rates, demand for other assets increases. Among these other asset prices include bonds issued by firms to finance their investment projects. As demand for bonds increases (raising the price and lowering the return), firms realize that more of their investment projects have positive net present value, and they issue more bonds in order to finance them. This causes investment and output to increase.[42] Moreover, in the case of equity and real estate, a rise in real interest rates increases the cost of capital and reduces the demand for real assets. This lowers production and sales of these assets and at the same time lowers their value. This is turn causes investment and output to decrease.

For economies with thin and undeveloped capital market, an important price in the economy is the exchange rate. This way in which the exchange rate affects demand is also relatively straightforward. The channel works in the following way - an expansionary monetary policy leads to a fall in real interest rates leads to depreciation of the domestic currency. This channel also involves interest rate effects because when domestic real interest rates declines, domestic currency deposits become less attractive to deposits denominated in foreign currencies (other than domestic currency), leading to a fall in the value of domestic currency deposits relative to other currency deposits, that is, a depreciation of the domestic currency. The lower value of the domestic currency makes domestic goods cheaper than foreign goods, thereby causing a rise in net exports and hence in aggregate output. Conversely, a tight monetary policy increases interest rate, raises demand for domestic assets, and hence lead to appreciation of the exchange rate. This appreciation tends to reduce the demand for domestic goods which become more expensive to foreign goods, and thus aggregate demand. Of course, these mechanisms do not take place overnight. And the magnitude of their impacts on aggregate demand depend on whether the markets expect the change in the exchange rate to be transitory or long lasting.

Changes in the exchange rate could also exert significant impact on households' and firms' balance sheet especially when they hold foreign currency debt either directly

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[42] Chami, Ralph, T. Cosimano, C. Fullenkamp, "The Stock Market Channel of Monetary Policy," IMF Working Paper No. WP/99/22, February 1999, p. 4.

contracted abroad or intermediated through the banking system. Changes in exchange rate could therefore affect net worth and debt-to-asset ratios that could lead to significant adjustments to spending and borrowing unless these debts are fully offset by foreign currency assets. This is seen where domestic residents of a particular country are net debtors to the rest of the world. A significant appreciation of the exchange rate may lead to an improved balance sheet position of residents that may result to large expansion of domestic demand. This form of balance-sheet effects would tend to offset the relative price effects.[43]

Furthermore, in a conference among senior central bankers in January 1998, it has been noted that the exchange rate appears to be an important channel for small open economies as it affects not only aggregate demand but also aggregate supply. A loosening of monetary policy leads to depreciation of the exchange rate, increase domestic producer prices even in the absence of any expansion of aggregate demand. This in turn may change wages and prices even before movements in import costs have worked their way through the cost structure.

The first three channels reflect transmission mechanism from the instruments directly under the control of central banks (such as short-term interest rates or reserve requirement) to those variables that most directly affect conditions in the non-financial sector such as asset prices and the exchange rate. The fourth channel of the monetary policy transmission indicates the link between financial conditions and the spending decisions of households and firms. It is argued that some countries have either poorly developed or tightly controlled financial systems where interest rates may not move to clear the market. In this case, aggregate demand could be influenced more by quantity rather than the price of credit. The latest version of credit channel involves the commercial-lending aspect that affects the abilities of firms to borrow. Commercial lending further comprises two features. One feature is the creditworthiness of borrowers. This mechanism stems from changes in interest rate that affect net worth of firms, thus creditworthiness, by altering values of assets, liabilities and other interest-sensitive cash flows. An increase in the quantity of money, for instance, improves the balance sheet of firms by reducing interest rates, enabling them to borrow and invest more. The other feature of commercial lending is the existence of “bank dependent” borrowers, usually

[43] In some instances, balance-sheet effects may even dominate relative price effects.

smaller firms which depend on banks' credit line to meet their financing needs. This therefore indicates that the availability of credit extended by commercial banks is related to the stance of monetary policy. If the central bank mops up money supply by reducing the quantity of reserves, banks reduce their lending to the public, affecting those firms which depend heavily on bank for financing. In this case, a contraction among bank-dependent businesses is assumed to affect aggregate demand and output.

3.1.2 From Aggregate Demand to Inflation

The final link in the transmission process is from movements in aggregate demand to the rate of inflation. Changes in these channels that influence the demand for goods and services in the economy eventually determines the rate of inflation. These linkages particularly support the notion that a temporary tightening in monetary conditions would produce a transitory decline below trend in real output and a permanent reduction in the rate of inflation, thereby resulting in a permanent reduction in nominal interest rates.[44]

3.1.3 Shocks

However, the world is a more uncertain and unpredictable place than this brief description of the linkages from these channels to the aggregate demand and inflation would imply. Both aggregate demand and prices are in practice frequently subject to shocks. Demand shocks can be external or domestic in origin. There are also supply shocks which typically affect prices directly. Such shocks will make demand and prices more uncertain, and they can also make it very difficult to estimate how much pressure aggregate demand is putting on the rate of inflation. In these circumstances, central bank actions have to be directed to coping with disorderliness in markets.

In particular, the open economy predicts that the interest and exchange rates, when it is under flexible exchange rate, apart from being transmission mechanisms, can also change as a result of exogenous shocks thereby exerting shocks to the economy. A tight monetary stance pushes up interest rate, thus reduces domestic spending. But this increase in the interest rate will similarly rev up domestic and foreign demand for domestic financial assets. The inflow of capital leads to the exchange rate appreciation

[44] Duguay, p.1.

that could reduce demand for exports and income-competing goods and increase imports, thereby reducing real spending. This appreciation of the exchange rate may also lead to balance sheet effects. If a country is a net debtor, this appreciation eases debt burden that may result to the expansion of domestic demand. If the asset effects are not too strong the interest rate and the exchange rate could move in the same direction, thus, reducing domestic spending pressures. Conversely, if the asset effects are strong, these rates could move in opposite direction, hence, the net result could be ambiguous.[45]

The central bank's immediate task then is to calm markets. Once the markets calm down, the central bank will be able to focus attention on the underlying economic situation, which typically lost to view during the turmoil.

3.2 The Transmission Channels Behind MCI: The Interest Rate and Exchange Rate

For a small open economy like the Philippines, the choice of the more effective channels in bringing about changes to economic activity is clearly a matter of judgment. The Philippines tends to recognize the two more important prices in the economy – the interest rate and the exchange rate. This brings us back to how macroeconomic variables would work in a small open economy like the Philippines. What is clear from Figure 5 is that while interest rate channel could represent domestic monetary conditions consistent with price and growth objectives, BSP's monetary actions can also be directed at an external objective (the exchange rate) consistent with a manageable balance of payments (BOP) position as the economy opens up. Together, these two channels are argued to well represent domestic monetary conditions.

The capital market (which comprises stock exchanges and other institutions where securities are bought and sold) creates an avenue for some firms, governments, and countries to finance spending in excess of their current incomes. It also enables them to lend to other savings they cannot employ as profitably themselves. However, many developing countries find the lack of an efficiently organized capital market a serious obstacle to the efficient use of their savings, and thus their overall economic

[45]Jansen, Karel, "Thailand, Financial Crisis and Monetary Policy," Institute of Social Studies, October 1999, p. 16.

development. In a report that provides an in-depth examination of Philippine capital market, a major finding reveals that the bond market is shallow and lacks liquidity which means that there are few investors, very few classes and types of securities. At the same time the market is dominated by government securities and there is lack of variety in private bond issues. In a similar vein, it is argued that stock market continues to be thin and suffers from insider trading and price manipulation.[46] Overall, these findings suggest that the capital market as channel in bringing about changes in economic activity in the Philippines could be argued to be slim.

The credit channel creates an avenue for small firms for financing as it is expensive for them to issue securities in the capital markets.[47] With this feature of credit channel, several studies have proved that bank lending responds to stance of monetary policy.[48] However, the importance of this channel has been ascertained to have declined during the last few years. Recent studies reveal that financial and capital account liberalization and the resulting significant surge in alternatives to bank loans have diminished the link between the real economy and bank-lending channel, thereby reducing the importance of credit as channel of monetary transmission. These reforms paved the way for financing through non-banks (finance companies and investment houses) that offer low-cost financing alternatives than commercial banks and that are funded largely by foreign borrowings. Increases in foreign borrowings are generalized outcome of capital inflows. Another point is what has been observed during the past few years that most deposits have been freed from the legal reserve requirement, thereby weakening the link between monetary policy and banks' ability to lend.

These findings could possibly explain the change in the relationship between monetary aggregates and inflation that was noted when the Philippine economy embraced the liberalization reforms. Since the BSP can no longer effectively control monetary aggregates, the BSP immediately shifted to interest rate policy to rein on in

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[46] The Philippine Daily Inquirer, 24 October 1999, at the net, http://www.inquirer.net/issues/oct99/oct24/news/news.

[47] Bank of Korea, "Korea's Experience of the Monetary Transmission Mechanism," paper presented at the BIS conference on the Transmission of Monetary Policy in Emerging Market Economies, Basle, Switzerland, January 1998, p. 141.

[48] For instance, Bernanke and Binder (1992) described how bank lending falls significantly six to nine months after an increase in the Fed Funds rate, a pattern that other researchers have verified. See Chami, p. 5.

flationary pressures. In particular, short-term borrowing rates are adjusted upwards whenever inflation starts to pick up. This policy move suggests that the interest rate exerts a role in gauging monetary conditions and further supports its importance as a variable in MCI.

These findings leave us with the two channels of monetary transmission – the interest and the exchange rates. However, most developing countries that are under the IMF stabilization program use these policy rates as instruments to arrest payments imbalances. In particular, tight monetary stance lowers aggregate demand, curbs inflation and improves balance of payments while expansionary monetary stance works conversely.[49] However, this analysis has been challenged by Neostructuralists associated with Lance Taylor. The Neostructuralists argue that devaluation and credit restraint as chief instruments of policy may have contractionary effects in the short-run. In particular, the Neostructuralists argue that devaluation is also an expenditure reducing mechanism with stagflationary consequences for developing countries. This is in contrast with the Neoclassicals view that devaluation is chiefly an expenditure-switching instrument and is assumed to have a stimulative effect on the traded goods. Further to this argument, the Neostructuralists believe that developing countries have characteristics that reinforce the negative aspects of devaluation on the demand side. On the supply side, a devaluation raises the prices of essential imports and raises costs. As regards monetary restraint, the Neostructuralists further argue that because financial markets are relatively underdeveloped in developing countries credit restraint has both aggregate supply and aggregate demand effects. Most banks in developing countries provide most of the credit for investment both in inventories as well as in fixed capital. Since credit comprise the bulk of money from the asset side, credit restraint, by raising the cost of investment, has a deleterious effect on output in both the short-run and the long run.

But in the Philippine setting, the contractionary-devaluation analysis is limited. Developments reveal that there could be some contractionary effects of peso depreciation in the overall economy in the very short-run that could be attributed to the period where trade flows are allowed to adjust to relative price changes. This brief period of adjustment eventually leads to the increase in foreign exchange earnings, improvement

[49]Tseng and Corker, p. 23.

in net exports, hence, output. This analysis is derived from a phenomenon where foreign exchange earnings in response to devaluation follow a J-curve, first declining and then rising afterwards or where current account worsens initially but as exports respond and import-substitutes are found, the current account will improve substantially.[50] On balance, therefore, the effects of peso depreciation are argued to have some stimulative effects on trade and consequently output. On an annual basis, there are three episodes starting 1986 up until 1999 where significant peso depreciation was noted, both in nominal and real terms - 1990-1991, 1993 and 1997 (Table 3). All these episodes were associated with domestic (earthquake and the eruption of Mt. Pinatubo) as well as external shocks (currency crisis). But what is clear is that these periods were accompanied by improvement in current account balance, BOP position, real growth after a year. Output growth rose to 1.6 percent in 1992 as current account deficit narrowed to US$858 million when the peso depreciated in 1990 and 1991. When the peso depreciated again in 1997, current account position recorded a surplus, while real growth remained positive at 0.1 percent. With the continued improvement of current account position during the first quarter of 1999, real growth rose further to 2.0 percent.

The inclusion of the exchange rate in reviewing domestic monetary conditions stems from the consensus among central bankers that it is an important price since it does not only affect aggregate demand but also aggregate supply. In the Philippines, an important indication of the importance of the exchange rate in the economy is the ratio of total trade of goods and services to GNP. This ratio was almost stable at around 30 percent during the latter part of the 80s, had steadily risen to almost 40 percent in 1994 and increased further to more than 50 percent in 1997. This indicates that the exchange rate is clearly the most important price in the economy. In a related vein, export growth has been sensitive to the real exchange rate changes. In 1989 when the real exchange rate was appreciating, real export growth fell by an average of 9.5 percent in 1990-1991 (Table 3). From 1998 until the first four months of 1999, exports continued to grow at an average of 4.9 percent when the real exchange rate depreciated in July 1997. These indications make the exchange rate important in monetary transmission, hence in the MCI.

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[50] Irvin, George, "Introductory Aggregate Economics," Lecture Notes on Macroeconomics of Development (INT 107), Term I (1998), Institute of Social Studies, p. 56.

Moreover, the open economy predicts that the interest and exchange rates affect movements of international capital flows. As suggested earlier on, a change in monetary policy shifts the real interest rate and affects directly the interest-sensitive areas of spending. It also, other things unchanged, moves the exchange rate, because the changed return available on short-term domestic instruments motivates capital flows across the border. This therefore indicates that the exchange rate along with international capital inflows provide additional transmission channels in an open economy.

The open economy further indicates that in a fixed exchange rate regime, the monetary authorities are not in full control of money supply as changes in money supply occur through changes in the BOP.[51] This indicates that control over money supply would require the monetary authorities to sterilize BOP imbalances. However, sterilization becomes a problem if the monetary authorities do not have enough holdings of securities or foreign exchange reserves, allowing them to control only over that part of the money supply that is created domestically through credit. Under these circumstances, disparities between the supply of and demand for money created by changes in domestic credit are eliminated through the BOP. The control of money supply is even more difficult with the presence of capital inflows that prevents domestic interest rates from deviating significantly from international rates. For instance, a decrease in the money supply would increase domestic interest rates and attract capital inflows. These capital inflows would then reverse both the reduction in the money supply and the rise in interest rates. Domestic prices then would be largely tied to international rates.

However, under a flexible exchange rate regime, control of money supply is evident, especially when capital is mobile. A monetary restraint puts upward pressure on domestic interest rate and induces capital inflows. But in contrast to a fixed exchange rate regime where these inflows would have offset the effects of restrictive monetary policies, under the flexible exchange rate regime, the domestic currency would appreciate in response to the excess supply of foreign exchange. This appreciation then reinforces the effects of monetary contraction by curbing demand for domestically produced tradable goods and reduces inflationary pressures.

In terms of monetary management, what these stories tell us is that while flexibility of the exchange rate enhances control over domestic monetary conditions in some

[51] Tseng and Corker, p. 24.

way, it also places other constraints on monetary policy as monetary conditions abroad become an important concern to domestic monetary authorities especially if the economy is small. This concern therefore necessitates the need to take the interest and exchange rates more into account as important channels through which monetary policy affects prices and aggregate demand.

3.3 Significance of MCI to Monetary Policy Process and Overall Economy

The significance of an MCI rests on three grounds. First, an MCI provides a broader assessment of the stance of monetary policy against any demand pressure by including the effect of changes in the exchange rate on the economy. There are two main considerations for including the exchange rate in reviewing domestic monetary conditions. First, under a floating exchange rate regime, monetary policy operates through two channels, the interest rate and the exchange rate. The interest rate affects the economy through its effect on savings and investment decisions while the effect of the exchange rate is transmitted through the demand for locally produced tradable goods and services and import prices. The extent to which interest rates and the exchange rate adjust will depend on developments in foreign interest rates and exchange rate expectations. Second, when aggregate demand is hit by an exogenous shock to the exchange rate caused by a loss of confidence in the domestic currency, swift monetary policy action is required to offset the expansionary effect of depreciation. In the absence of MCI, there is greater likelihood that monetary authorities may not take timely actions and monetary conditions might be inappropriately eased until a more complete assessment of the exchange rate can be made.

Second, an MCI could provide a framework to assess the divergence of actual monetary conditions from desired monetary conditions, consistent with the objectives of monetary policy. Since it is difficult for monetary authorities to exactly identify the types of shocks hitting the economy from day-to-day or week-to-week, it is necessary to develop a range within which monetary conditions may acceptably move. An assessment can be made of whether actual monetary conditions have deviated sufficiently from desired conditions (thereby requiring policy action) or whether the desired path itself had also moved as a result of the shock (thereby not requiring policy action).

And third, MCI gives markets some guide to how they may weigh the relative importance of the interest rate and exchange rate channels. It is especially useful in

helping public understand when, as often in the last 12 months and more, interest rates and the exchange rate are moving in opposite directions.

3.4 Comparative Survey of MCI

This section briefly describes the three most accessible econometric studies in the construction of MCI – Duguay (1994) for Canada, Nadal De-Simone, Dennis, and Redwards (1996) for New Zealand, and Jore (1994) for Norway.

The concept of MCI that was introduced by the BoC was based on Duguay's (1994) quarterly estimate of output covering the period 1980 up until 1990. Independent variables include real US GDP, real interest rate (lagged by eight quarters) and real exchange rate (lagged by 12 quarters). It has estimated both nominal and real MCI, in which it focuses on the former over the short-term due to lags in the availability of the price data from Canada's main trading partners that are used in calculating real effective exchange rates. Meanwhile, the real MCI is measured as a weighted sum of the changes in real interest and exchange rates. Based on Duguay's estimation, the relative weight in terms of real exchange rate changes (or when normalized using exchange rate changes) is roughly 1:3, which would mean that a one percent change in the real effective exchange rate has about the same effect on aggregate demand as a three percentage point change in the interest rate. This implied ratio is then the basis of Canada's MCI.

Since the beginning of the 1990s, BoC uses MCI as its operational target instead of monetary aggregates and is updated monthly. It sets a target for the rate of inflation, and given the anticipated inflationary pressures, policy actions are taken to achieve this target. At the same time, it sets a provisional path for MCI that would be consistent with the achievement of the targeted outcome for inflation. To complement these measures, it makes considerable use of a broad range of economic and financial indicators (such as monetary and credit aggregates as well as collective wage settlements) to help in its analysis of current and anticipated economic developments.[52]

Other central banks have followed BoC in constructing MCI but the extent to which they are used in monetary policy management differs.

[52] Gonzalez-Hermosillo and Ito, p. 9.

The RBNZ is also a main user of MCI until January 1999[53] that extends its use by projecting the desired path of its MCI and takes the further step of announcing this path publicly. RBNZ's MCI is based on a model built by Nadal-De Simone, Dennis and Redward (1996) that covers first quarter 1987 up until second quarter 1995. Output and price equations are computed for nominal version of the model which include core CPI and potential output as dependent variables and interest rate, foreign three-month interest rates, foreign GDP, export price index of New Zealand's major trading partners, nominal effective exchange rate and monetary aggregate.[54] The real version includes real output as dependent variable and real exchange rate and real interest rate as independent variables. RBNZ used real version of the model with output as dependent variable to arrive at real MCI.

In a similar vein, the Central Bank of Norway publishes computed MCI in its inflation report. Norway's MCI is based on a single-equation model of aggregate demand of Jore (1994) that runs from first quarter 1985 to fourth quarter 1994. The quarterly model underlying the Norwegian MCI takes the form of output gap as dependent variable with only interest rate and exchange rate as independent variables. Based on Jore's equation, the MCI weight in terms of real exchange rate is 1:2, which would mean that a one percent change in the real exchange rate has about the same effect on aggregate demand as a two percentage point change in the interest rate.[55]

Other central banks explored the MCI concept. Mayes and Viren (Bank of Finland) calculated a monetary indicator for the EURO Area (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom) using quarterly data for each of the countries over the period 1972 to 1997.[56] Based on the relative weights estimated by Mayen and Viren, two MCIs for the EURO Area are constructed based on ratios 1:2.5 and 1:5.5 in terms of the exchange rate.

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[53] In February 1999, RBNZ announced that it was abandoning its MCI. From 17 March 1999, it will set an "Official Cash Rate (OCR)" to determine overnight interest rates in the money markets so that in future they should be less volatile. The OCR is an interest rate set by the RBNZ to implement monetary policy to achieve the ultimate objective of price stability. By setting the OCR, RBNZ is able to substantially influence short-term interest rates, such as the 90-day Treasury bill rate and floating mortgages. See The Economist, "G'day Goldilocks," 6-12 March 1999, p. 72.

[54] Nadal De-Simone, Dennis, Redward, p. 15.

[55] Eika, Ericson, Nymoen," p. 20.

[56] Mayes and Viren, p.1.

Another study made by Peeters explored the concept of MCI to the European and Monetary Union (EMU) member countries that include Belgium, France, Germany, Italy, the Netherlands and the United Kingdom based on two global macromodels, NIGEM (the National Institute Model, London) and EUROMON (De Nederlandsche Bank). However, aside from using nominal short-term interest rate only, the model also incorporated nominal long-term interest rate. The computed MCI weights indicate higher pressure from interest rates rather than the exchange rates, and higher pressure from long-term rates than from short-term rates.[57] The Bank of Thailand also estimated MCI that suggests the relative importance of interest rate over exchange rate on inflation. The implied MCI weight is 1:3.3 in terms of the exchange rate.

Other central banks and institutions like the IMF and the OECD are confined to computation of MCI. The Reserve Bank of Australia has similarly computed and analyzed several versions of MCI. In its World Economic Outlook (May 1996), the IMF came up with MCIs of selected major industrial countries (Germany, France, Italy and the United Kingdom) with the index defined as a weighted average of the percentage point change in the real short-term interest rate and the percentage change in the real effective exchange rate from base period of January 1990. In terms of real exchange rate, relative MCI weights of 1:3 are used for France, Italy and the United Kingdom, and 1:2.5 for Germany.[58]

In its Economic Outlook (June 1996), the OECD also computed MCIs for selected countries as a way of talking about their overall monetary conditions which take into account movements in real exchange rates as well as real short-term interest rates. Computed weights reflect the relative impact of proportional changes in each component on real GDP and are derived from the OECD's Interlink Model with first quarter of 1990 as base year. The weights in terms of the exchange rate are as follows: United States, 1:9; Japan, Germany, France, Italy, United Kingdom, 1:4; Australia, 1:2.3; Sweden, Spain , 1:1.5.[59]

The relative differences in weights of different countries could be explained by the use of different types of models and whether they have calibrated their measures to

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[57] Peeters, p. 201.
[58] IMF World Economic Outlook, May 1996, p. 16.
[59] OECD Economic Outlook, June 1996, p. 31.

indicate pressures on output or prices or a combination. Some countries use macroeconometric model while others use structural or single-equation models. The relatively higher weight given for interest rate by all the countries in this survey reveals the fact that in virtually all systems in developed economies, the more important channel remains to be the interest rate. And within these developed countries' systems, the differences in the weights given to interest rates depend on the size of the economy. For relatively larger economy, the highest weight is seen in the United States, followed by Japan, Germany, France, Italy and the United Kingdom.

3.5 Criticisms Raised Against MCI

Main criticisms advanced against the use of MCI are summarized by Peeters (1999)[60] into four main points. First, the short-term interest rate and the exchange rate are not the only factors that influence monetary conditions. Other factors such as the long-term interest and asset prices are also important to assess the monetary policy stance. Second, the weights attached to the interest and exchange rates are not directly observed and are model dependent. Furthermore, it has been argued that the value of an MCI for conducting economic policy is doubtful because it relies on strong assumptions which have not been thoroughly investigated. These assumptions concern dynamics, cointegration, exogeneity, parameter constancy and omitted variables. Work that critically examined the limitations of MCI has been done by Stevens (1998). Third, interest and exchange rates are added straightforwardly. King (1997) argues that any attempt to construct a simple monetary conditions index is akin to monetary policy to adding together apples and oranges.[61] And fourth, the relation between interest and exchange rates is assumed to be dependent on time. As King (1997) argues, it would make little sense to trade off interest rates and the exchange rate according to computed constant weights.

Several studies raised the difficulty in the estimation of the impact of the interest and exchange rates on either aggregate demand or prices and no method is totally satisfactory.[62] While some of the technical arguments raised may be valid if the MCI is

[60] Peeters, pp. 186-187.
[61] Peeters, p. 187.
[62] Mayes and Viren, p.2.

to be viewed as a long-run fundamental economic relationship, this paper argues that the usefulness of MCI as a short-term indicator of the stance of monetary policy is not necessarily diminished even if it incorporates certain strong assumptions. This paper continues to argue that in order to account for these potential problems, the actual path is recalibrated as often as possible as what the BoC utilizes. On balance, the fundamental arguments in favor of MCI are simplicity, convenience and broadness of using both the interest and exchange rates as short-run indicators of domestic monetary policy stance in the face of an open economy.

4 THE PHILIPPINE MONETARY CONDITIONS INDEX

The concept of MCI provides a continual reminder to monetary authorities that there are other channels aside from the interest rate that could bring about changes in the real economy. As what Chapter III suggests, in the final analysis, the fundamental argument in favor of MCI continues to be its simplicity, convenience and broadness of using both the interest and exchange rates in gauging domestic monetary conditions in the face of an open economy. Along this argument, the concept of MCI is then applied to the Philippines.

What follows are detailed sections on the way Philippine MCI is constructed - the nature of variables, the econometric estimates, weight and base year – as well as some simulations, operational considerations for guiding policy and analysis. Some caveats regarding its use are likewise discussed.

4.1 Construction of Philippine MCI

4.1.1. Nature of Variables. Real variables are used in this paper.

These variables are argued to have the most direct connection with macroeconomic variables as they weed out price effects. While there are lags in the availability of the price data from main trading partners of the Philippines that are used in calculating REER, estimates of price movements of its trading partners which are argued to exhibit stable movements, can be used.

4.1.2 The Econometric Estimation

Econometric Estimation [63]

$$\Lambda \ln GDP = C - \alpha \Lambda \ln REERMAJOR(-8) - \beta \Lambda \ln BANK(-9) + \chi \Lambda \ln GOV(-6) - \delta \Lambda \ln GDP(-3)$$

where,

C	=	Constant
Λ	=	Difference operator
ln	=	Natural logarithm
GDP	=	Real gross domestic product
REERMAJOR	=	Real effective exchange rate of peso with major trading partners
BANK	=	Real average bank lending rate of commercial banks
GOV	=	Real government spending

4.1.2.1 The Data Set

The estimation equation represents the aggregate demand in the domestic economy (measured as the first difference in the logarithm of real GDP in 1985 pesos, thus measuring quarter-on-quarter GDP growth) from first quarter of 1989 up until the first quarter of 1999 and is explained by four variables. These explanatory variables include **(a)** real effective exchange rate (REER) with major trading partners of the Philippines[64] (lagged by eight quarters) (REERMAJOR), **(b)** real average bank lending rate (lagged by nine quarters) (BANK), **(c)** real government spending (lagged by six quarters) (GOV), and **(d)** real GDP (lagged by three quarters) (GDP).

The REER with Philippine major trading partners (with 1980 as base year) is reported by BSP. This series is computed by deflating the nominal effective exchange rate index (NEERI) using the consumer price index of the major trading partners weighted by the total trade (export plus import) of the Philippines to these countries. If REER goes up, this signals a decrease in its value or an appreciation in the real ex

[63] Based on equation 1, the growth of seasonally-adjusted U.S. gross domestic product in 1992 dollars as reported by the International Financial Statistics is used as a proxy for foreign economic activity. The U.S. market accounted for nearly 35 percent of the export shipments made by the Philippines as of end-1998. But in the course of regression estimation, this variable was dropped out as it proved to be insignificant to the model, implying that US GDP growth alone could not explain foreign economic activity.

[64] These major trading partners include the United States, Japan, Germany and the United Kingdom.

change rate making Philippine exports less price-competitive. On the other hand, if REER goes down, this signals a depreciation in the real exchange rate which makes Philippine exports relatively more price-competitive.

For domestic interest rate, the 90-day commercial paper rate is used in most studies. It is argued that changes in policy and interbank rates lead to changes in bank loan rates for borrowers, which may affect investment decisions, and in deposit rates, which may affect the choice between consuming now and later.[65] In this model, the average real bank lending rate of ten sample commercial banks is used as reported by BSP.[66] This is the rate which banks charge for domestic consumption and production for both the home and overseas markets. To transform it into the real interest rate, the quarterly inflation rate is subtracted from the nominal average bank lending rate. Inflation is measured by the quarterly changes in prices tracked in the Consumer Price Index (1994=100) as reported end of quarter by the National Statistics Office (NSO).

Government consumption expenditure is in 1985 pesos as reported by the National Statistical Coordination Board (NSCB).

4.1.2.2 Testing for Stationarity of Data

Having discussed the individual time series included in the estimation, the next concern is to determine whether a particular series is stationary or non-stationary. A stationary time series has a constant mean and variance over time, which implies that following a random disturbance it returns over time to its equilibrium or average value so that the random disturbance has no permanent effect on it. A non-stationary series, on the other hand, is characterized by some upward or downward trend over time, which implies a nonconstant variance so that it does not tend to return over time to its equilibrium or average value after a random disturbance and simply drifts as in a random walk, an evidence that it has a unit root.[67]

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[65] BIS policy paper, p. 9.

[66] In the regression estimation, real overnight RRP rate, real 90-day Treasury bill rate, real time deposit rate failed to show significant effects on real GDP.

[67] Valdepeñas, p.15. See also Mukherjee, White and Wuyts, Econometrics and Data Analysis for Developing Countries, Chapter 10 (Trends, Spurious Regressions and Transformation to Stationarity) and Maddala, G.S., Introduction to Econometrics, 2nd edition, Chapter 13 (Introduction to Time Series Analysis).

Formal tests could be used to test whether a particular time series follows a random walk. Here the augmented Dickey-Fulller (ADF) test is applied to analyze the stationarity of GDP, REERMAJOR, BANK, GOV, real US GDP (USGDP) and residual (GDPRESID) (Refer to Technical Appendix, Tables 1a to 1g for E-VIEWS results).

Table 1a summarizes the results of ADF test applied to the original variables. Except BANK, GDPRESID and USGDP (at 10 percent level of significance only), all ADF statistics on levels turn out to be insignificant, indicating nonrejection of the null hypothesis that the series is nonstationary at 5% and 10% levels of significance. Moving to first differences, the ADF tests all produced significant test statistics for all the variables at 5% and 10% levels of significance, indicating stationarity of the first difference. On this basis, first differences of the levels are used to arrive at estimated coefficients.

4.1.2.3 Testing for Stability of Data

The data sets are also examined to see whether they are stable across various subsamples or if they exhibit structural change, hence, cannot be pooled in regression estimation. For this purpose, Chow's Forecast Test is used. The sample uses first quarter 1994 (post-liberalization period) and first quarter 1996 (period when capital inflows surged significantly) as cut-off points. Both tests produce insignificant F-statistic, indicating stability of data at 5 percent level of significance. [68]

4.1.3 The Estimated Coefficients

The subsequent analysis of regression results is based on Model A as it appears that the estimated coefficients tend to be statistically credible when compared to Models B (that includes US GDP) and C (that assumes similar lag effects for exchange and interest rates on GDP) (See Technical Appendix, Table 2a). The estimation equation is assumed to be linear and is estimated on the basis of their first differences with lags.

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[68] The Chow forecast test estimates the model for subsample comprised of the first group of observations (T1). The estimated model is then used to predict the values of the dependent variable in the remaining group of observations (T2). A large difference between the actual and predicted values casts doubt on the stability of the estimated relation over the two groups of observations. Using F-statistic, two years are used to test stability of data:

	F-statistic	Probability
1994:1	1.661473	0.300907
1996:1	0.525138	0.870684

Lags are determined those which proved to be significant to the model. Its estimation by Ordinary Least Squares (OLS) regression over the sample period yielded the following coefficients with their corresponding t ratios in parenthesis listed directly below and other diagnostics telling on the quality of the overall fit:

The Estimated Coefficients

$$GDP = \underset{(0.566)}{0.007} - \underset{(-2.057)}{0.588}REERMAJOR(-8) - \underset{(-2.198)}{0.065}BANK(-9) + \underset{(3.691)}{1.411}GOV(-6) - \underset{(-3.651)}{0.425}GDP(-3)$$

R2 (adjusted) = 0.585 DW = 2.024 DW-h statistic = - 0.115 F = 11.569 N = 41

The complete specification is contained in Technical Appendix, Tables 2b to 2d, the EVIEWS printout of the model. The estimated coefficients have the expected signs.[69] All time-series components (except the constant term) are statistically significant at 5 percent level of significance with probability values that are practically equal to zero.[70]

From the estimated equation, it follows that both the exchange and interest rates influence GDP growth. Assuming all other things to be constant, a one percent increase (decrease) in real lending rate decreases (increases) GDP growth by 0.07 percent while a one percent appreciation (depreciation) in REER depresses (stimulates) GDP growth by 0.59 percent.

The overall fit of the estimated equation looks fairly good as 58 percent of the variation in GDP from first quarter 1989 up until first quarter of 1999 is explained by

[69] It should be noted that the equation was tested for exact collinearity (defined in EVIEWS as "near singular matrix"). The regressors are exactly collinear if one regressor can be written as a linear combination of the other regressors. Based on regression results, the equation does not exhibit any form of exact collinearity.

[70] The t-test result implies that the constant term is statistically insignificant, hence, can be dropped from the model. This result also implies that the model is regressed through the origin. But in this model, the constant term is maintained since dropping it from the model and insisting on fitting a regression through the origin (even if there is an intercept) could lead to serious specification error. See Gujarati, Damodar N., Basic Econometrics, 2nd edition, 1988, McGraw-Hill International Editions, p. 138 and Mukherjee, White, and Wuyts, p. 136.

changes in REER and real lending rate along with government consumption spending and previous changes in GDP. It should be noted that this relatively low adjusted R2 is usually the case when variables regressed are in "first differences." A significant F statistic suggests that the slope coefficients are clearly different from zero and tends to confirm the overall goodness-of-fit of the regression.

The Durbin-Watson (DW) statistic indicates the absence of autocorrelation. However, if the equation contains a lagged dependent variable, then the OLS estimates are argued to be biased and inefficient.[71] In this equation, the lagged value of the dependent variable GDP shows up as another explanatory variable, that is, autoregressive. In effect, this could mean that its current behavior is interpreted to be explained by its past movements. This way of specifying the model suggests that this quarter's change in real GDP is partly influenced by its own changes during the last three quarters. Maddala argues that there are instances under which lagged dependent variable can be used as independent variable. Broadly, these could arise from among other things, expectations and adjustments. In this case, DW test is not applicable. A test to account for this case is DW - h statistic. The computed DW h statistic is -0.115, indicating that there is no first-order serial correlation. [72]

Moreover, real GDP appears to respond sluggishly to changes in monetary conditions to the extent that it lags behind changes in the real exchange rate and the real bank lending rate by eight quarters and nine quarters, respectively. On top of this, it also lags behind government consumption spending by six quarters and its own changes by three quarters. These lag effects are however not unusual. The inclusion of lagged values of the variables is argued to aid in a better estimation of parameters. In general, there are certainly delays and lags at every stage of policy transmission that could be prevalent during the period of recognition of any disturbance to decision mechanism and further to implementation (inside lag) as well as to the timing of the effects of the

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[71] Mukherjee, White, and Wuyts, p. 370.

[72] Computed using Durbin-Watson h statistic formula: $h = [(1- 1/2d) (\sqrt{N/(1- var\ \chi)})]$, where d is the original DW statistic, N is the number of observations, varχ is variance of lagged dependent variable used as an independent variable. The decision rule is as follows: (a) if computed $h > 1.96$, reject the null hypothesis that there is no first-order positive first-order correlation; (b) if computed $h < -1.96$, reject the null hypothesis that there is no negative autocorrelation; and (c) if h lies between –1.96 and 1.96, do not reject the null hypothesis that there is no first-order (positive or negative) autocorrelation. See Gujarati, pp. 526-527. Also see Maddala, pp. 248-249.

policy action on the economy that are spread over time (outside lag).[73] As regards monetary policy, though it is perceived to be capable of being continuously adjusted, a smooth transmission mechanism is not at all times possible because its final effects are not entirely predictable and subject to variable lags.[74]

The propagation of lending rate depends upon various factors, including the organization of financial markets and the state of expectations. Moreover, among the variables in the equation, it shows the longest delays in affecting the real economy. Between the exchange and interest rates, simulations with macroeconometric models suggest that the interest rate has the least effects on real economic activity.[75] This is followed by the real exchange rate. However, this is not unusual and is well documented in studies in other countries. Valdepeñas enumerated some of these studies that reinforced the argument that it takes some time for any adjustment in the real exchange rate to affect first the trade balance and consequently output. For instance, in their analysis of the U.S. dollar appreciation in 1980-1985 and its depreciation in 1985 – 1988, Caves, Frankel and Jones noted that evidence of their respective impacts on exports and imports showed up only either by end-1986 in the case of appreciation or by end-1987 in the case of the depreciation.[76] Briefly, there are various factors that could explain these delayed responses to changes in the exchange rate. One factor could be attributed to information and recognition lags aggravated by language and distance factors. Second factor could also be due to bureaucratic or technical lags. A third factor could be the order-delivery lags and fourth, expectations-ridden decision-making which ends up in lagged reaction.

Based on respective beta coefficients, what seem to drive changes in real GDP

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[73] The inside or internal lag is further divided into recognition lag or the period that elapses between a disturbance occurs and the time the policymakers recognize that action is required and the decision and action lags or the delay between the recognition of the need for action and policy decision. See Dornbusch, R., Fischer, S., and Startz, R., Macroeconomics, 7th edition, 1998, Irwin McGraw-Hill, pp. 417-420.

[74] Friedman, Milton, "The Lag in Effect of Monetary Policy," *The Journal of Political Economy*, Volume LXIX, The University of Chicago Press, February-December, 1961, p. 447. Friedman was challenged by Culbertson (University of Wisconsin) with his assertion that based on the broad record of experience leads to expect that the predominant direct effects of monetary and other changes will occur within three to six months. See also Jha, p. 110.

[75] Smets, Frank, "Financial Asset Prices and Monetary Policy: Theory and Evidence," BIS Working Paper No. 47, Monetary and Economic Department, September 1997, p. 11.

[76] Valdepeñas, p. 24.

is government consumption spending followed by the competitiveness of Philippines as indicated by the real exchange rate, its own changes during the previous quarters and then real bank lending rate.

4.2 Real Monetary Conditions Index

Since there are lags in the availability of actual data on real GDP (approximately two quarters), a monthly real MCI based on REER of the peso and real lending rate is constructed. Monetary policy will be reflected in present MCI as its movements will eventually affect output. Therefore, it will be a leading indicator of movements in output. It is computed from January 1989 up until June 1999 with December 1996 as base year.

4.2.1 Base Year.

The real MCI uses 1996 as base year. In 1996 (particularly in the third quarter), the economy sustained a higher growth path fueled largely by the strong performance of investments and exports. The performance of the economy during previous years was hounded by some shocks such as coup d'etat in the Aquino administration (1989), earthquake (1990), eruption of Mt. Pinatubo (1991), growing fiscal deficit due to presidential elections (1992), deregulation (1993) and Mexican crisis in late 1994 to early 1995. In 1996, inflation rate was brought down to single-digit following prudent monetary policy, healthy fiscal position and rebound in agriculture which restored rice supply to normal levels all contributed to the low inflation environment that consequently led to softening of interest rates. Meanwhile, the overall balance of payments remained in surplus as sustained investor confidence kept substantial foreign capital and investments flowing in and as exports maintained their strong performance.

4.2.2 The MCI Ratio.

The weight REERMAJOR/BANK is termed as the MCI ratio. The ratio is estimated at 1:1/9 (or 0.11) based on the estimated equation on Section 3. This ratio implies that a one percent appreciation (depreciation) in REER has the same effect on MCI as a 0.11 percent increase (decrease) in real lending rate, assuming all other things are constant (Duguay, 1994). This contradicts estimates of most MCIs in which interest rate is attributed a higher weight. But this finding remains valid in the Philippines as the

exchange rate continues to be the most important price in the economy following its heavy reliance to foreign investment to finance its investment requirements.

4.2.3 Computation of Real Monetary Conditions Index

Based on equation 3 and using MCI ratio of 1:1/9 in favor of REERMAJOR, the index is constructed as follows -

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Real MCI = (REERMAJOR at current period/ REERMAJOR at base period -1) +
((1/(-.588/-0.065) (BANK at current period – BANK at base period) + 100

In this computation, BANK is measured in percentage points and REERMAJOR as an index equal to 100 at its base period. This equation is scaled (that is, REERMAJOR is transformed) such that a one point change in the MCI is equivalent in its effect on aggregate demand to a one percent change in interest and exchange rates. The overall picture of MCI is seen in Chart 5.

4.3 MCI Weight and Base Year Simulations

Different weights as well as base years are simulated to determine the impact of these changes to MCI. Charts 6 and 7 indicate that changes in the relative weights as well as base years alter the value of the index but not the qualitative picture.

Two separate MCIs are computed using January 1994 (post-liberalization period) and April 1997 (before currency crisis) as base years. Together with computed MCI using December 1996 as base year, all three indices behaved almost exactly the same (Chart 6).

As regards weight simulations and taking December 1996 as base year, two separate MCIs are calculated based on ratios of 1:0.12 and 1:0.10 for lending rate and REER. With the computed MCI using 1:0.11 ratio, Chart 7 shows some differences in the value of MCI but not the overall picture.

4.4 Operational Considerations for Guiding Policy

The near stable prices that were already achieved by most developed countries [77] indicates that central banks can now be more explicit in its commitment to support growth without undermining price stability. Like many other studies, this paper focuses on real GDP effects with the view that monetary conditions are important for growth.[78]

A more important indicator of real economic activity is the output gap or the difference between actual and potential output.[79] Potential output represents that level of output of the economy when all productive factors are at their fully employed levels. Typically, it is derived from macroeconomic model. In the Philippines, potential output could be derived from the Quarterly Macroeconometric Model (QMM) where an important innovation of the model's real sector is the important role assigned to potential output and capacity utilization of the industry and services sectors.[80] However, keeping the QMM up to date and refining its equations are at present concerns of government agencies. In the absence of figures of potential output, estimates of potential output are used.[81] Actual real GDP is then divided with potential output (or trend GDP) as measure of output gap. This indicates that if actual real output is below potential output (or below 1.00), monetary policy has to be eased (implies declining MCI) to increase aggregate demand. On the other hand, if the ratio is more than 1.00 or when actual output is higher than potential output, then the economy is overheating and monetary policy needs to be tightened (indicates rising MCI).

The estimated MCI is compared with the estimated output gap from January 1989 to June 1999 to see the relative effects of changes in MCI, hence, determines its

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[77] IMF World Economic Outlook , October 1999.

[78] At the same time it should be emphasized that in terms of monetary policy, Philippine experience over the past few years reveals that real exchange rate and real interest rate seem to rather behave as independent variables in the face of a more open economy.

[79] Sachs, J., Larrain, F., Macroeconomics In the Global Economy, 1993, Harvester Wheatsheaf, p. 45. See also Dornbusch, Fischer and Startz, p. 13.

[80] The QMM is one of the components of the inter-agency project entitled "Development of Short-Term Forecasting Models for the Philippines." This project was implemented by the National Economic and Development Agency (NEDA) and funded by the Canadian International Development Agency (CIDA) through the Philippine Institute for Development Studies (PIDS). This project was developed through the efforts of the Department of Finance (DOF), the Department of Budget and Management (DBM), the National Economic and Development Authority (NEDA) and the BSP together with consultants funded by the project.

[81] To derive potential output , actual real output is regressed on an intercept and a time trend using OLS. The equation is defined as OLS GDP C TIME, where C is constant. Using values for time, trend for GDP is assumed to be potential output.

usefulness for policy formulation (Chart 8). Simple trend line reveals that the generally loose monetary conditions during the period are accompanied by the very moderate increase in the output gap. The significant spikes in the output gap every fourth quarter could be attributed to the seasonality of production. This should be corrected in the estimation of potential output.

At various points, it could also be seen that significant tightening of monetary conditions leads to widening of the output gap with some lags, implying resources have become unemployed and actual output falls below potential output. This is clearly seen in significant dip in the output gap in 1992. Conversely, continues easing of monetary conditions leads to narrowing of the output gap with some lags as increased availability of resources allows the economy to produce more goods and services, thus resulting in a rising level of output.

From the perspective of monetary management, the estimated MCI can be used as one of the leading indicators of movements of the output gap. Though simple scatter diagram between the estimated MCI (quarterly average) and the output gap reveals a somewhat flatter regression line (implying relatively loose relationship) (Figure 6) and a simple coefficient of correlation of only around 11.0 percent, the estimated MCI can still be argued to contain information on the possible behavior of the output gap. This information is particularly valuable to monetary authorities as a way to monitor the possible consequences of its actions and contain possible risks inherent in the conduct of monetary policy.

The estimated MCI can also entail warnings on monetary authorities if they are hanging on too loose or too tight in their stance that could consequently entail significant adjustments to the real economy. If the monetary authorities focus on the MCI, the need for contractionary or expansionary stance would show up directly in the index. In the absence of an MCI, there is greater likelihood that the monetary authorities would not take timely policy actions. However, this does not imply that the monetary authorities would always fail to react when needed but rather the lack of a direct mechanism signaling the need to take appropriate actions would make it more likely that policy actions would be delayed.

Furthermore, a decomposition of MCI into lending rate and REER would give monetary authorities a clearer picture of monetary policy stance that could help them detect an impending crisis. Prior to July 7 crisis, MCI shows a continuous tightening of

monetary conditions as peso-dollar rate showed sustained real appreciation while higher interest rates were jacked up to meet program targets with the IMF.

The key issue here involves the implied trade-off between the interest and exchange rates in the MCI. In the final analysis, movements in MCI hinges on a great deal on knowing what else is going on. Certainly, it matters why the movement in either the interest or exchange rate has taken place. It could be temporary and be reversed. Monetary authorities need to have time to consider what an exchange rate movement means, before making a decision as to whether interest rates should move in offsetting direction.

4.5 Analysis of Philippine MCI

Relative to December 1996 and for over longer horizon (January 1989 to June 1999), MCI exhibits generally expansionary monetary conditions against demand pressures, albeit at moderate pace (Chart 5). When compared with actual quarterly real GDP growth over the same period, this generally loose monetary stance appears to be part and parcel of the moderate decline in the growth trend (Chart 9). Across this period, the MCI shows two periods of significant changes in monetary conditions that happened during the period 1990 to 1992 and 1995 to 1997.

The first period is characterized by gradual deceleration in MCI from October 1990 until August 1991 and steady increase up to March 1992. The early phase of this period was characterized by relatively tight monetary conditions when a balance of payments crisis emerged towards the latter part of 1990, hastened by the rise in the oil prices following the Gulf War (Chart 10). This caused severe speculation in the market that reflected in the nominal depreciation of the peso relative to the US dollar. To calm the market, the CBP stepped up its open operations mainly through RRP facility and in December 1990 increased banks' total reserve ratio to 25 percent (the highest so far since 1986). The CBP sold dollars in the foreign exchange market during the last quarter of the year to defend the peso. As a result, BSP's real RRP rate rose to 41.3 percent at the end of 1990 while real bank lending rate remained double-digit. From 5.2 percent at the first quarter of 1992, real GDP growth dropped to 0.3 percent during the fourth quarter while inflation reached 15.3 percent at the end of the year. However, as soon as the speculation in the market died down, monetary conditions started to ease as reflected in the decline of MCI from January 1991 to August 1991. Banks' total reserve

ratio was lowered to 24 percent in January 1991 while BSP's RRP rate dropped to single digit following the decline in borrowings in reverse repurchase facility. Real lending rate dropped to 5.1 percent in April and further down to 0.6 percent in August 1991. Real 91-day Treasury bill rate similarly declined from a high of 16.6 percent in September 1990 to 2.2 percent in April 1991. The decline in major interest rates during this period was accompanied by a brief real depreciation in October to December 1990 but appreciated at the start of 1991. During this period inflation remained double-digit while real GDP declined from first quarter to the third quarter.

This relatively expansionary monetary stance was however short-lived. A severe energy crisis hit the economy that affected strongly production sector towards the end of 1991.[82] This problem was further complicated by CBP's own deficit that resulted from uncollectable loans and past borrowings that left CBP with negative networth.[83] To finance its deficit, CBP bonds were issued in May 1991 amounting to P5.4 billion. This institutional problem made CBP dependent on NG through the Bureau of Treasury for open market operations through the Treasury bill market. At the same time, there were pressures to NG and CBP to comply with IMF quantitative targets. These domestic shocks as well as institutional constraints altogether led to aggressive intervention of the CBP in the market. The CBP borrowed heavily from the market by issuing CBP bills starting October 1991 that persisted until February 1992. At the same time, NG built up its deposits with the CBP to mop excess liquidity from the system. The active open market operations were seen in dramatic increases in its key rates. Overnight RRP rate rose from 5.5 percent in June 1991 to 16.2 percent in September 1991 and further to 18.8 percent in November 1991. The real 91-day Treasury bill rate increased again from 1.9 percent in September 1991 to 9.7 percent in February 1992. Other interest rates followed soon as real lending rate reached a high of 14.7 percent in October 1991.

Meanwhile, in the foreign exchange market, a real appreciation of the peso accompanied the dramatic increases in interest rates. This significant tightening of monetary conditions led to the dramatic decline in real investment growth to 17 percent in

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[82] Vos, Rob and Josef Yap, The Philippine Economy: East Asia's Stray Cat?, International Finance and Development Series, Institute of Social Studies, 1996, p. 23.

[83] Krugman, Paul, J. Alm, S. Collins, E. Remolona, "Transforming the Philippine Economy," A NEDA/United Nations Development Program Report, Pasig City, Philippines, June 1992.

1991 while current account position remained in deficit at US$858 million or 1.6 percent of GNP. While inflation was contained at single digit in 1992 at 8.6 percent, the real economy absorbed the painful adjustment as growth was posted at 1.6 percent (Table 3).

The second period covers the gradual uptrend of MCI from October 1995 to August 1997 followed by the significant drop thereafter until November 1998 (Chart 11). Some significant reforms were put in place before this period. The Philippines restored its stabilization and structural reform measures with the IMF. The previously insolvent CBP was restructured and recapitalized. This restructuring is important, as it has made possible the conduct of independent monetary policy. Another important reform measure was the significant liberalization of the exchange system in August 1992 that provided some form of reassurance to potential investors that income and capital could be repatriated freely. Shortly after liberalization measures on the exchange system were finally put in place, the Philippines entered into debt restructuring agreement with commercial banks in December 1992 to help in the rehabilitation of the country's external position. These twin measures paved the way for the Philippine access to exchange and capital markets.

These reforms led to salient changes in the economy. For one, capital flows came rushing into the economy, which (as a proportion of GNP) more than doubled at the end of 1994 or about 5.9 percent of nominal GNP (Chart 12). Interest rates became a bit sensitive to foreign interest rates (although the gap is substantial at more than 10 percentage points in 1998) while the link between the BSP RRP rate and interbank rate have loosened as seen in their simple coefficients of correlation.[84] A trend real appreciation of the peso was noted. Banks start to depend on foreign market for liquidity support instead of the BSP. This is shown in the significant upsurge in monetary foreign liabilities starting 1995.

However, important weaknesses in the economy remained, many of which were legacies of past economic crises. The savings rate has remained low, thus increasing the

[84] The coefficients of correlation between lending, three-month LIBOR, BSP RRP rate and interbank rate for two periods are as follows:

	Lending-LIBOR	IBCL-RRP
1989-1993	0.76	0.52
1994-1998	0.79	0.35

dependence of the economy on foreign capital for its investment requirements. Gross domestic savings as percent of GNP reached 16.3 percent compared to gross domestic investments of 23.6 percent of GNP at the end of 1993. This dependence was highlighted by the economy's susceptibility to a major external shock during this period - the currency crisis in July 1997.[85]

The MCI shows steady increase from October 1995 to June 1997 only to rise dramatically in July to August 1997. This period was generally characterized by increasing real interest rates. The period prior to the currency crisis was accompanied by surge in capital inflows that were intermediated through banks. These flows have caused credit extended to the private sector to jump significantly. In August 1996, year-on-year growth credit extended by banks to the private sector reached more than 56 percent, the highest since the 80s. A closer look at the nature of bank loans outstanding by economic activity reveals a notable year-on-year growth of 97.2 percent in end-1996 to financial institutions, real estate and business services sector (Table 4).

These developments alarmed the BSP. The BSP responded by heeding on the side of caution by siphoning off excess liquidity in the system through the reverse repurchase market. Real overnight RRP rate rose from 2.1 percent in November 1990 to 5.1 percent in September 1996 and further to 19.9 percent when the peso was allowed to float. As a result, compliance with the IMF monetary ceilings was significant. In 1996 alone, average BM overperformance[86] was P33.2 billion or 12.7 percent of the target (Chart 13).

The increase in interest rates has put pressure on the peso to appreciate. However, this real appreciation was matched by BSP's purchases at the foreign exchange market to beef up its reserves. BSP's purchases amounted to US$6.6 billion in 1996 or about 26 percent of the total purchases (BSP plus commercial banks) at the Philippine Dealing System. At the end of 1996, BSP's gross international reserves amounted to US$10.0 billion, equivalent to about 3.2 months of imports of goods and services from only US$5.9 billion at the end of 1995. The REER appreciated slightly by 0.5 percent from October 1995 to August 1997. This slight real appreciation as what Houben

[85] The Philippine economy also felt the spill over effects of Tequila crisis towards the end of 1994 until the early part of 1995. However, the effects to growth performance were moderate.
[86] Defined where actual BM is less than program targets.

(1997) argues could be attributed to the one-off factors linked to the general recovery of confidence in the peso as the economic and political uncertainties have declined and exchange restrictions have progressively been lifted and the upward adjustment of the equilibrium exchange rate itself.[87] Or could also be driven by price increases in non-tradeables sector that could be seen from the growth in loans extended by banks to financial institutions, business services and real estate. Another factor could be attributed to the significant rise in capital inflows. But what is more important is that the moderate real appreciation of the peso could also be driven by BSP's intervention in the foreign exchange market. This could be seen in Figure 7 which plots monthly changes in the nominal effective exchange rate against monthly BSP net intervention in the foreign exchange market (expressed as percent of RM) from October 1995 to August 1997. Observations are concentrated on the upper quadrant, top right, which indicates BSP's intervention policies (in particular net purchases at the foreign exchange rate market) are oftentimes geared to prevent further appreciation of the peso. Conversely, it could also be seen that BSP's strategy to sell when it depreciates is seen in points at the lower quadrant, bottom left. This figure suggests asymmetry in policy intervention as it is pursued more aggressively to prevent pressure from appreciation than depreciation.

The tight monetary stance was maintained through early September (two months after the currency crisis broke out) but was then eased briefly, before policies had to be strengthened again in early October in order to meet monetary targets under the IMF program. Since then, monetary policy has been relaxed until November 1998 apart from brief periods of tightening in early December and late January 1998. The BSP subsequently lowered its borrowing rates gradually and progressively lowered its total required reserve ratio to 17 percent as of end-July as the pressure in the foreign exchange market subsided and inflation has stabilized.

But even as BSP rates along with required reserve ratio were lowered, bank lending rate remained relatively high due to the banks' cautious lending stance amid concern over borrowers ability to repay. To induce further deceleration in lending rate, the BSP implemented steps to inject liquidity into the system. The BSP opened a 30-day lending window and swap window for banks without government securities and purchased banks' government securities at market rates. At the same time, the BSP ex-

[87] Houben, p. 13 - 14.

ercised moral suasion over commercial banks as it sought their cooperation to lower lending rates while NG rejected relatively high bids in 90-day Treasury bills and tapped foreign sources to finance its expenditures.

These efforts, complemented with the global concern to cut interest rates among central banks during the last quarter of 1998 to avert any possible global recession, was felt in the system by a significant drop in key interest rates. Treasury bill rates and bank lending rates decelerated and helped chances for sustaining recovery of domestic demand while inflation, despite some adverse weather conditions, remained subdued. Real bank lending rate dropped significantly from a high of 14.1 percent in January 1998 to 2.4 percent in November 1998. In a similar vein, real 91-day Treasury bill rate declined from 12.1 percent at the start of 1998 to 2.3 percent in November. The country's external accounts position has likewise adjusted rapidly, in part reflecting a substantial decline in imports due to weaker economy. However, strong growth has also been contributing to the achievement of a current surplus and a positive overall balance of payments position. Though real investments remain sluggish, declining by 22.2 percent during the fourth quarter of 1998, real GNP remained positive at 0.1 percent for whole year 1998. These developments were reflected in a declining MCI as domestic monetary conditions continued to ease.

Three things can be drawn from these developments that are reflected in MCI. First, a decomposition of MCI shows REER and lending rate moving in opposite directions starting 1989, indicating monetary authorities' objective to offset whatever expansionary impact there could arise to lid on the inflationary pressures. While REER shows trend real appreciation (implying tight monetary stance), lending rate exhibits trend slowdown (suggesting expansionary monetary stance) (Chart 14). Second, these developments could be attributed to a combination of factors including a mix of monetary, exchange rate and intervention policies along with structural rigidities that overall imparts growth bias. Third, this further suggests that the scope of independent monetary policy management is relatively narrow as internal and external shocks as well as occasional interventions to comply with IMF monetary targets heavily influenced monetary policy.

4.6 Some Caveats in the Use of MCI

While the MCI is a useful indicator of the monetary policy stance, it should not be used in an overly mechanical fashion. In particular, the monetary authorities should avoid maintaining a precise MCI target in line with the daily fluctuations of the exchange rate. Policy action to offset the effect on the MCI is only required if the exchange rate is likely to be extended.

Since the MCI ratio is estimated econometrically, it is empirically based and can be relied upon to the extent the underlying estimation is sound. In addition, the ratio is an average measure over time, and may mask the differences in the relative strength of interest and exchange rate effects, depending on actual conditions at that time.

Finally, to the extent that some monetary policy channels are overlooked in the construction of MCI, it will not fully reflect the overall stance of monetary policy. In some cases, the MCI has been expanded to include other financial indicators such as the yield gap between short-and long-term interest rates, equity prices and fiscal policy.

5 CONCLUSIONS, POLICY RECOMMENDATIONS AND IMPLICATIONS

5.1 Evaluation of Findings

This paper has established that the breakdown in money demand relationship has resulted to the need to reassess the appropriate framework for monetary policy in the Philippines. With uncertainties from liberalization of the economy as well as globalization of financial markets, adherence to strict money supply rule suggests that overlooking or underestimating these uncertainties can yield a less certain inflation outcomes and may place an excessive adjustment on the real economy.

Though gauging domestic monetary conditions in an open economy continues to be difficult, the need to circumvent these uncertainties by focusing both on the two important prices in the domestic monetary stream – interest rate and exchange rate - becomes clear. This paper presents a view of transmission of monetary policy that emphasizes the interest rate and the exchange rate channels rather than the monetary and credit aggregates and other domestic price assets. It shows that strong linkages can be estimated from the interest and exchange rates to total spending in the Philippines. Together, these prices constitute MCI.

This paper uses the methodology of MCI adopted by BoC and provides an analysis of the real GDP effects of real bank lending rate and real effective exchange rate in the Philippines. Empirical analysis suggests the inclusion of exchange rate to MCI is sensible as it finds strong impact effects compared with interest rate changes. This contradicts estimates of most MCIs in which interest rate is attributed a higher weight. But this finding remains valid in the Philippines as the exchange rate continues to be the most important price in the economy following its heavy reliance to foreign investment to finance its investment requirements. Another salient point is the direction of MCI that appears to be in line with actual movements of REER. One must be careful in assessing future movements of the peso as it maybe adversely affected by risks of the international market.

MCI could be virtually helpful. In particular, the usefulness of MCI can be gleaned from its ability to contain some information on the likely movements of the output gap given its current direction. Furthermore, a decomposition of MCI can aid BSP in detecting some indications of an impending crisis.

While in most respects, the Philippine MCI is relatively attractive as it captures both changes in the interest and exchange rates in explaining domestic monetary conditions, the whole mechanism remains to be cautious. The coefficients in the estimated equation should be dealt with prudence as it may be sensitive to structural changes in the economy.

It should be emphasized that the MCI is not the BSP's instrument. It serves as an indicator of short-term domestic monetary policy stance. The inclusion of these two prices and not the others reflects an empirical judgment. It does not preclude the use of other channels as indicators of total spending in the conduct of monetary policy.

Also, it should be noted that exchange rate can move for reasons apart from monetary policy. This indicates that MCI should not be viewed as a static measure.

The monetary authorities strategy to heed always on the side of caution by continuously seeking an alternative framework of domestic monetary conditions in the face of uncertain and fast-changing world maximizes their chance to keep inflation manageable that will consequently impact on real output. The monetary authorities are certainly every bit as concerned with growth as price stability.

On these bases, the tentative conclusion can be formed that MCI is a useful short-run measure of domestic monetary conditions in the face of an open economy.

5.2 Policy Recommendations and Implications

It is clear from policy makers all over the world that liberalization of economies and globalization of financial markets are here to stay. In fact, even the new BSP Governor Rafael Buenaventura, in a newspaper interview, expects that all banks, foreign or domestic, to provide the most competitive services for the country not through deregulation or legislation, but through openness of the market.[88]

Given the usefulness of MCI, its possible adoption would require a number of changes to monetary policy decision process not only for the Philippines but to all countries adopting similar schemes as well.

As regards construction methodology, further improvement is needed especially concerning the estimated equation that is the basis for getting weights of MCI. A better indicator would be potential output. In the absence of QMM figures, Ghatak, Healey and Jackson suggest a way of measuring potential output by examining peaks of the economy. When plotting real GDP over time, joining the peaks of the trend line gives a measure of the trend in productive potential. The rate of increase in real GDP from one peak to another gives an indication of the rate of growth of productive potential. As GDP rises, the resources in the economy become more fully employed. Once the full-employment position of the economy is reached, the boom moves down into a recession. Therefore, joining up the peaks over time shows the path that the economy would move along as if it was at full capacity.[89] To improve the computation of potential output, seasonal factors, like seasonality of production, have to be taken into account.

From the viewpoint of keeping up with the regional momentum, however, it seems competitiveness should be kept under review. REER with respect to Philippine competitor countries (Malaysia, Indonesia, Thailand and Singapore) should also be assessed as indicator of MCI.

A related area involves dynamics of the estimated equation, in particular, the lags or delays in output response to changes in the interest and exchange rates. Problems would arise if these lags are not the same as in the case of estimated equation in

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[88] As of 5 July 1999, the Philippines has 53 commercial banks, including 14 foreign banks. Current Philippine law restricts to 14 the number of foreign banks with branch licenses in the Philippines. However, foreign banks may acquire up to 40.0 percent of any domestic commercial bank.

[89] Ghatak, S., N. Healey, P. Jackson, The Macroeconomic Environment, 1992, Oxford: Oxford University Press, p. 31.

this paper. This implies that there is no neat trade-off between changes in the interest rate and exchange rate at least in the short-run. But in the medium and long-term these prices are expected to converge to effect final impacts on real output. This also implies that policies that would directly affect exchange rate are expected to affect real output faster than the interest rate. Here, the monetary authorities should be careful with this difference in monetary policy formulation.

From the perspective of monetary policy formulation, the BSP must be explicit and transparent in its single and overriding objective. The exchange rate should be seen as an important part of the transmission mechanism, rather than a final goal. In short, the BSP must demonstrate its willingness to commit to the single objective of promoting a low inflation environment conducive to a sustainable growth. MCI should be endorsed by both the National Government and the BSP. Other steps might include publication by the BSP of regular assessments of MCI, testimony before Congress using MCI as measure of its monetary policy stance, and immediate announcements of policy changes if there are any. Improvements in this regard would be desirable, however, regardless, of the framework adopted.

There is a general consensus that the monetary policy environment entails risks that could virtually affect the interest and exchange rates. It would be too difficult for policymakers to know exactly what causes these shocks. But without coming to some sort of assessment about what the underlying forces at work are, policymakers could not decide what, if any, policy response is appropriate to changes in these prices.

On this account, it will be crucial to scrutinize further the extent and depth of Philippine foreign exchange and financial markets. In particular, the BSP should have a better handle of various instruments and products that banks create or offer to the financial market. Examples are swap deposit transactions, which prior to the currency crisis, were popular among big commercial banks. Such a probe into the workings of the market for these transactions may bare underlying trends and peculiarities that could be used in monetary policy strategies that can help determine how robust or thin the market is and to what extent will it impact on the economy.

Towards this end, it is proposed that further modification of the monetary indicators and vigilance in their monitoring be made along the following areas. First, deposit money banks' or DMBs' (commercial banks and rural banks accepting demand deposits) statement of conditions which are the basis for Monetary Survey be carefully

monitored. The Monetary Survey is a consolidation of the accounts of the monetary authorities and DMBs that shows the financial relationship between the monetary institutions subsector – whose liabilities include the economy's money supply – and other sectors of the economy. From the asset side, it is composed of domestic and foreign assets. From the liabilities side, it constitutes total liquidity or the sum of M3 and deposit substitutes and other liabilities (marginal deposits, bills payable). From the domestic asset side, the BSP should monitor carefully the quality of loans extended by the monetary system to the private sector not only to tradable sectors but more so to non-tradable sectors such as financial services and real estate to determine if the economy is overheating. Another schedule in domestic asset side that needs regular scrutiny is DMBs' investments account to determine the quality of banks' investments.

From the foreign asset side, the BSP should also be vigilant in monitoring schedule of banks' net foreign asset to include not only levels but the nature and maturities of foreign borrowings of commercial banks. Prior to currency crisis, this account showed historically significant growth, indicating overborrowing from the international market. It is also suggested that the scope of Monetary Survey be expanded to include savings banks, other rural banks, development banks and non-banks such as investment houses and finance companies to have a comprehensive picture of the financial system.

Finally, it is suggested that regular dialogue between the BSP and Bankers Association of the Philippines be observed to maintain transparency between these institutions.

From the foregoing consideration, it may be apparent that the MCI, after all has little yet significant contribution to monetary policy strategies. It may not be a panacea to crisis. It should be stressed that possible adoption of MCI does not itself guarantee an immediate improvement in credibility of the BSP. Rather, the MCI can provide a benchmark against which the BSP can build a record of low inflation conducive to sustained growth credentials over a period of time.

On the other hand, unless the limitations in the use of MCI are properly and neatly addressed, it would be risky for the BSP to abandon the present base money anchor. A quick exit away from a money target to dampen output volatility can beget new risks as the Philippines is susceptible to internal as well as external shocks.

Admittedly, the use of MCI as a sole instrument for monetary policy management while useful is limited. This implies that MCI would have to be supplemented by

other existing policies and instruments, a whole gamut of which has to be tried and tested, while new ones would have to be continually developed to expand the existing menu of options to monetary policy management.

This brings us back to the entire empire of monetary policy and its management as an effective strategy to overall development strategy. Certainly, more is involved than just a question of reversing whatever negative impacts there might be in the process of untimely and unfounded monetary strategy. Better domestic policies lie at the heart of monetary policy. This implies vigilance to continuously seek alternative ways to explain the changing monetary policy process while making prudential regulations work better. These lessons seem to have been learned by Philippine monetary authorities and other East Asian economies since the currency crisis in mid 1997. By putting them to practice will require an enormous amount of discipline, commitment and political will.

Monetary authorities will continue to struggle and respond flexibly but cautiously to any shocks but the strong commitment and support of private institutions (banks and non-banks) to monetary policy strategy are essential if monetary authorities are to find more definitive, workable and lasting solutions to threats of globalized finance. Obviously, the world is both more complex and more interesting than this and with the broader field of monetary policy strategy, its flow of traffic is not one way either.

TABLE 1
RESERVE MONEY AND ITS MAIN COMPONENTS
End-Period, In Billion Pesos

	RESERVE MONEY		Net Foreign Assets (NFA)			Net Domestic Assets (NDA)		
				of which:				
	LEVELS	Annual % Change	Total	NIR	BSP Net FX Purchases(+)/ Sales(-) 1/	Total	of which: NG Deposits	OMO 2/
1986	51.0	32.7	-133.3	-16.2	750.9	184.3	-16.4	-30.5
1987	57.8	13.1	-132.2	-12.3	150.4	190.0	-42.6	-11.5
1988	67.3	16.5	-121.6	-8.0	217.1	188.9	-58.2	-10.3
1989	92.9	38.0	-108.2	3.6	483.9	201.1	-69.6	-6.9
1990	108.8	17.1	-140.5	1.9	-64.1	249.3	-67.3	-6.0
1991	129.4	19.0	-68.5	58.7	1845.8	197.9	-75.3	-56.2
1992	144.9	12.0	38.2	91.5	2250.3	106.7	-137.8	-90.8
1993	171.8	18.6	56.8	99.6	-51.9	115.0	-113.8	-48.7
1994	182.4	6.2	91.8	129.3	2928.9	90.6	-84.5	89.1
1995	212.8	16.6	118.4	155.5	1975.1	94.4	-73.4	113.8
1996	243.3	14.3	232.7	263.8	4642.5	10.6	-106.5	48.2
1997	266.5	9.5	211.9	266.7	-2641.3	54.6	-78.3	142.1
1998	239.8	-10.0	232.7	313.1	101.5	7.1	-59.5	152.8
1999 May	239.0	9.4	318.7	410.9	497.9	-79.7	-104.9	79.4

1/ In Million US$.

2/ OMO refers to CB/BSP lendings under the repurchase facility (RP) less CBP/BSP borrowings under the reverse repurchase (RRP) facility and its issuances of its own securities, namely, CB/BSP bills, CB notes, CB bonds and CBCIs. Starting December 1993, OMO includes BSP holdings of Treasury bills.

Source of Data: BSP-Department of Economic Research

TABLE 2

LEGAL RESERVE REQUIREMENTS AGAINST PESO DEPOSIT LIABILITIES AND DEPOSIT SUBSTITUTES OF COMMERCIAL BANKS

In Percent

Effective Date	Circular. No.	TOTAL 1/	REGULAR RESERVE					LIQUIDITY RESERVE 3/
			Demand	Savings	Time 2/	Deposit Substitutes 2/	"NOW" Accts.	
26-May-86	1104	22	22	22	22,6	22,6	22	
4-Aug-86	1112	21	21	21	21,6	21,6	21	
1-Dec-86	1122	21	21	21	21,5	21,5	21	
23-Jun-89	1204	21	21	21	21,7	21,7	21	
4-Aug-89	1207	21	21	21	21,9	21,9	21	
4-Sep-89	1209	20.5	20.5	20.5	20.5,13	20.5,13	20.5	
5-Oct-89	1209	20	20	20	20,17	20,17	20	
5-Nov-89	1209	20	20	20	20,20	20,20	20	
26-Mar-90	1233	21	21	21	21,21	21,21	21	
15-Nov-90	1261	22	22	22	22	22	22	
30-Nov-90	1261	23	23	23	23	23	23	
28-Dec-90	1269	25	25	25	25	25	25	
29-Jan-93	1377	24	24	24	24	24	24	
30-Apr-93	1377	23	23	23	23	23	23	
30-Jul-93	1377	22	22	22	22	22	22	
31-Dec-93	10	22	20	20	20	20	20	2
15-Aug-94	38	19	17	17	17	17	17	2
31-May-95	73	17	15	15	15	15	15	2
3-Jan-97	119	16	14	14	14	14	14	2
4-Jul-97	119	15	13	13	13	13	13	2
31-Jul-97	136	17	13	13	13	13	13	4
15-Aug-97	139	18	13	13	13	13	13	5
29-Aug-97	140	21	13	13	13	13	13	8
5-Sep-97	141	20	13	13	13	13	13	7

19-Sep-97	141	19	13	13	13	13	13	6
15-Oct-97	144	18	13	13	13	13	13	5
15-Nov-97	144	17	13	13	13	13	13	4
20-Mar-98	158	17	10	10	10	10	10	7
29-May-98	166	15	8	8	8	8	8	7
2-Oct-98	180	17	10	10	10	10	10	7
1-Feb-99	188	16	10	10	10	10	10	6
1-Mar-99	188	15	10	10	10	10	10	5
16-Apr-99	197	14	10	10	10	10	10	4
2-Jul-99	205	12	9	9	9	9	9	3

1/ Includes regular and liquidity reserves

2/ These rates apply to those with maturites of: 730 days or less and more than 730 days, respectively. Starting 15 November 1990, which is the effectivity date of
Circular No. 1261, a uniform rate was prescribed regardless of maturities.

3/ Refers to the portion which are allowed to be held in the form of market-yielding government securitites purchased directly from the BSP. Prior to 31 May 1995,
this formed part of the regular reserves. After that date, it was added on to the regular reserves and was later referred to in later circulars as liquidity reserves.

Source: BSP-Department of Economic Research

TABLE 3

PHILIPPINES: SELECTED ECONOMIC INDICATORS, 1986-Latest 1999

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
I. MACROECONOMIC OBJECTIVES															
A. Real GNP (Average, %)	4.2	4.6	7.7	5.9	4.5	0.5	1.6	2.1	5.3	4.9	7.2	5.2	0.1	2.0	Jan-Mar
B. CPI, Average, Year-on-Year (1994=100)	-0.4	3.0	12.2	11.5	13.2	18.5	8.6	7.0	8.3	8.0	9.1	5.9	9.7	8.0	Jan-Jul
C. Balance of Payments Overall Position														p/	
(Deficit(-)/Surplus(+)	1242	264	593	451	-93	2103	1492	-166	1802	631	4107	-3363	1359	2756	Jan-May
of which: Current Account(Deficit(-)/															
Surplus(+)	954	-444	-390	-1456	-2567	-869	-858	-3016	-2950	-3297	-3953	-4351	1287	1324	Jan-Mar
of which:															
Real export growth	5.0	15.1	11.5	-0.9	-8.5	-10.5	2.5	8.8	10.2	21.4	8.6	16.9	7.2	2.6	Jan-Apr
II. POLICY VARIABLES															
A. Monetary Aggregates														p/	
M3, Nominal Year-on-Year Growth, %	7.6	12.1	22.6	28.0	18.4	15.5	11.0	24.6	26.5	25.3	15.8	21.0	7.4	7.0	Jan-Apr
M3, Real Year-on-Year Growth, %	8.0	9.1	10.4	16.5	5.2	-3.0	2.4	17.6	18.2	17.3	6.7	15.1	-2.3	-2.5	Jan-Apr
M3/Nominal GNP Ratio	24.2	24.1	25.1	27.8	28.1	27.7	28.0	32.0	35.0	38.9	38.6	41.6	41.0	39.4	Jan-Mar
Net Domestic Assets, MS/Nominal GNP	49.3	45.3	41.2	41.1	45.6	37.6	31.5	36.8	39.7	46.3	52.4	65.7	60.2	54.3	Jan-Mar
Base Money, Nominal Year-on-Year														p/	
Growth, %	19.8	11.0	15.1	35.7	26.3	14.3	9.2	14.5	11.5	17.0	14.3	16.1	3.9	-5.3	Jan-Apr
Reserve Money, Nominal Year-on-														p/	
Year Growth, %	32.7	13.1	16.5	38.0	17.1	19.0	12.0	18.6	6.2	16.6	14.4	9.5	-10.0	8.9	Jan-Apr
Net Domestic Credit from the Monetary															
System, Year-on-Year Growth, %	-13.7	-9.1	7.1	22.4	31.2	0.6	3.0	146.1	20.5	31.9	39.1	27.5	-2.8	-6.0	Jan-Apr
Base Money Multiplier 1/	2.568	2.593	2.763	2.607	2.443	2.469	2.509	2.732	3.098	3.319	3.363	3.503	3.620	4.053	Jan-Apr
B. Overall NG Budget Surplus/Deficit(-)															
(In Billion Pesos)	-31.3	-16.7	-23.2	-19.6	-37.2	-26.3	-16.0	-21.9	16.3	11.1	6.3	1.6	-50.0	-45.3	Jan-May
(As Percent of Nominal GNP)	-5.1	-2.5	-2.9	-2.2	-3.5	-2.1	-1.2	-1.5	0.9	0.6	0.3	0.1	-1.8	....	
C. External Debt (In Million US$)	28.3	28.6	27.9	27.6	30.0	31.4	32.1	35.5	38.7	39.4	41.9	45.4	47.8	....	
D. 91-day Treasury Bill Rate (Ave., %)															
In Nominal Terms	14.4	11.4	14.4	19.3	23.4	21.4	16.1	12.3	13.7	11.3	12.4	13.1	15.3	11.9	Jan-May
														a/	
In Real Terms	14.8	8.4	2.2	7.8	10.2	2.9	7.5	5.3	5.4	3.3	3.3	7.2	5.6	5.2	Jan-May
E. Average Peso-Dollar Rate															
Average Peso-Dollar Rate	20.39	20.57	21.10	21.74	24.31	27.48	25.51	27.12	26.42	25.71	26.22	29.47	40.89	38.44	Jan-May
(Rate of Appreciation(+)/															
Depreciation(-))	-8.7	-0.9	-2.5	-3.0	-10.6	-11.5	7.7	-5.9	2.7	2.7	-1.9	-11.0	-27.9	4.0	
Real Effective Exchange Rate 3/													e/	e/	
(Index at 1980=100)	71.45	67.11	66.04	70.71	69.20	68.18	76.37	74.65	79.57	84.30	91.54	88.49	71.27	75.70	Jan-May

1/ Derived as M3/Base Money
2/ REER OF Major Trading Partners.
p/ Preliminary
.... Data not available.
a/ Inflation rate for the month of May 1999 was 6.7 percent.
e/ Estimate.

TABLE 4
LOANS OUTSTANDING OF COMMERCIAL BANKS 1/
1990-May 1999

	1990 Dec	1991 Dec	1992 Dec	1993 Dec	1994 Dec	1995 Dec	1996 Dec	1997 Dec	1998 Dec	1999 May
A. Classified by Economic Activity (In Million Pesos)										
1. Agriculture, Fisheries & Forestry	26919.7	35159.0	38700.0	46091.6	49845.0	59603.0	63433.9	70705.2	62930.1	61917.2
2. Mining and Quarrying	6224.7	5568.5	6862.1	10767.3	5585.6	8710.6	9529.3	16231.3	20047.7	16729.5
3. Manufacturing	92515.7	89712.2	112702.4	142985.3	189457.5	253638.9	361555.9	424255.4	357455.0	339269.9
4. Electricity, Gas & Water	3168.5	3505.7	4046.8	10501.9	13199.4	16460.3	31368.9	42023.8	47284.0	47943.6
5. Construction	6394.1	6953.5	8239.3	13619.7	18019.8	24759.8	43132.1	51589.7	54972.2	55603.9
6. Wholesale & Retail Trade	34764.6	44377.5	53224.1	67994.0	95089.6	130568.1	180281.4	230765.0	210190.5	189567.4
7. Transportation, Storage & Communication	9029.5	9077.1	11063.3	16899.7	25988.4	44708.0	68556.7	101252.9	98636.0	97155.4
8. Fin. Inst., Real Estate & Bus. Services	40495.2	48267.3	65694.2	72307.5	99333.7	123943.9	244422.1	348476.6	347339.3	344915.1
9. Community, Social & Personal Services	20743.1	21453.5	26897.3	51662.4	46277.0	74867.8	117984.2	131485.0	149336.2	145063.9
TOTAL	240255.1	264074.3	327429.5	432829.4	542796.0	737260.4	1120264.5	1416784.9	1348191.0	1298165.9
B. Year-on-Year Growth Rate (%)										
1. Agriculture, Fisheries & Forestry		30.6	10.1	19.1	8.1	19.6	6.4	11.5	-11.0	-2.8
2. Mining and Quarrying		-10.5	23.2	56.9	-48.1	55.9	9.4	70.3	23.5	0.0
3. Manufacturing		-3.0	25.6	26.9	32.5	33.9	42.5	17.3	-15.7	-16.6
4. Electricity, Gas & Water		10.6	15.4	159.5	25.7	24.7	90.6	34.0	12.5	4.7
5. Construction		8.7	18.5	65.3	32.3	37.4	74.2	19.6	6.6	4.3
6. Wholesale & Retail Trade		27.7	19.9	27.8	39.8	37.3	38.1	28.0	-8.9	-6.5
7. Transportation, Storage & Communication		0.5	21.9	52.8	53.8	72.0	53.3	47.7	-2.6	-2.2
8. Fin. Inst., Real Estate & Bus. Services		19.2	36.1	10.1	37.4	24.8	97.2	42.6	-0.3	-4.4
9. Community, Social & Personal Services		3.4	25.4	92.1	-10.4	61.8	57.6	11.4	13.6	15.2
TOTAL		9.9	24.0	32.2	25.4	35.8	51.9	26.5	-4.8	-5.6
C. Per Cent Share (%)										
1. Agriculture, Fisheries & Forestry	11.2	13.3	11.8	10.6	9.2	8.1	5.7	5.0	4.7	4.8
2. Mining and Quarrying	2.6	2.1	2.1	2.5	1.0	1.2	0.9	1.1	1.5	1.3
3. Manufacturing	38.5	34.0	34.4	33.0	34.9	34.4	32.3	29.9	26.5	26.1
4. Electricity, Gas & Water	1.3	1.3	1.2	2.4	2.4	2.2	2.8	3.0	3.5	3.7
5. Construction	2.7	2.6	2.5	3.1	3.3	3.4	3.9	3.6	4.1	4.3
6. Wholesale & Retail Trade	14.5	16.8	16.3	15.7	17.5	17.7	16.1	16.3	15.6	14.6
7. Transportation, Storage & Communication	3.8	3.4	3.4	3.9	4.8	6.1	6.1	7.1	7.3	7.5
8. Fin. Inst., Real Estate & Bus. Services	16.9	18.3	20.1	16.7	18.3	16.8	21.8	24.6	25.8	26.6
9. Community, Social & Personal Services	8.6	8.1	8.2	11.9	8.5	10.2	10.5	9.3	11.1	11.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Peso and Foreign Accounts but excluding transactions of local banks' foreign offices.

Source: BSP-Department of Economic Research

CHARTS

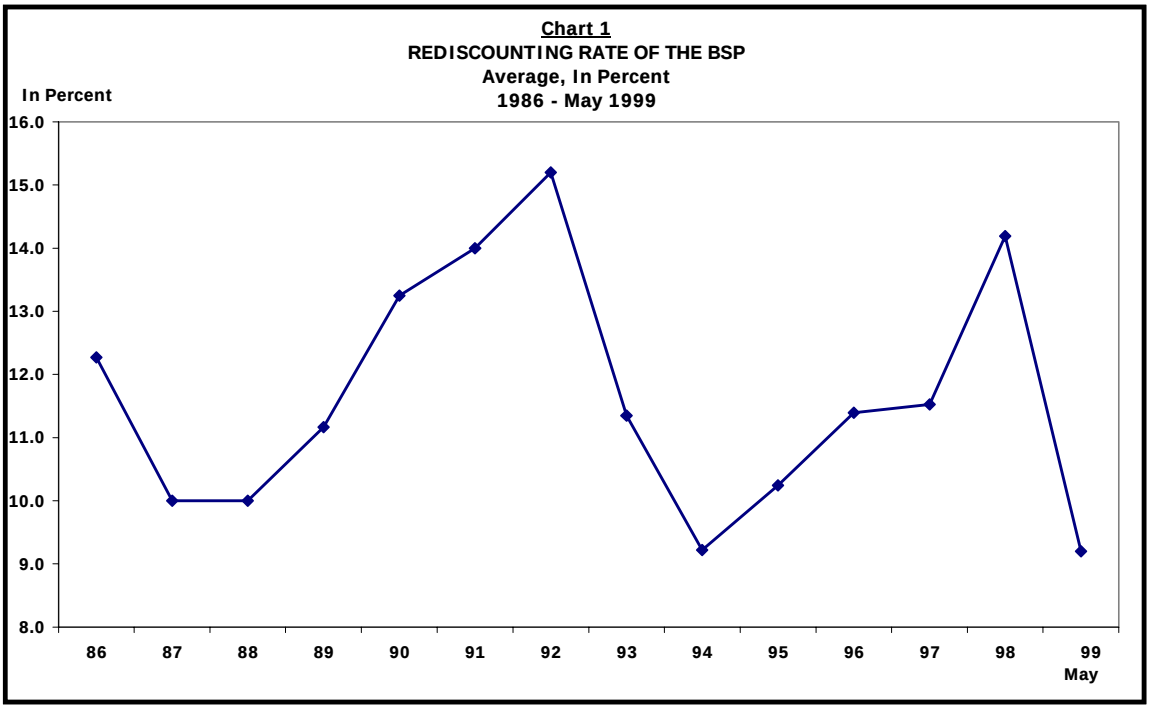


Chart 1
REDISCOUNTING RATE OF THE BSP
Average, In Percent
1986 - May 1999
In Percent
16.0
15.0
14.0
13.0
12.0
11.0
10.0
9.0
8.0
86
87
88
89
90
91
92
93
94
95
96
97
98
99
May

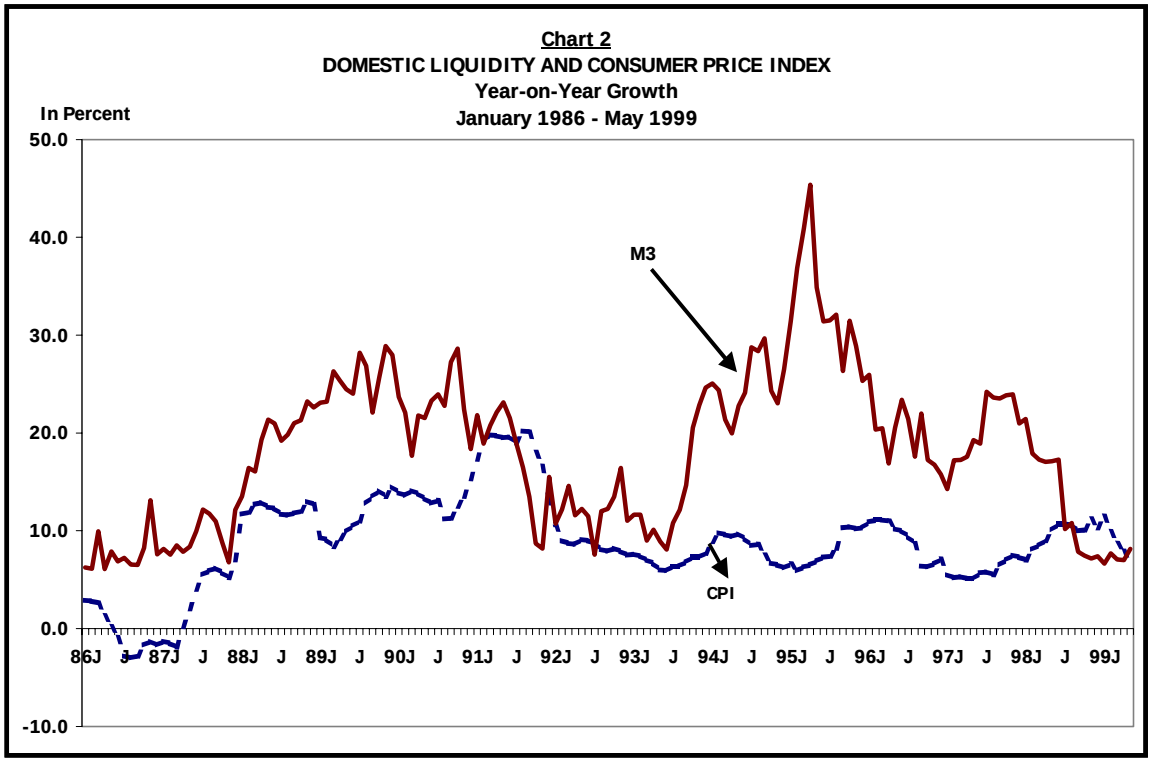


Chart 2
DOMESTIC LIQUIDITY AND CONSUMER PRICE INDEX
Year-on-Year Growth
January 1986 - May 1999
In Percent
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
M3
CPI
86J
87J
88J
89J
90J
91J
92J
93J
94J
95J
96J
97J
98J
99J

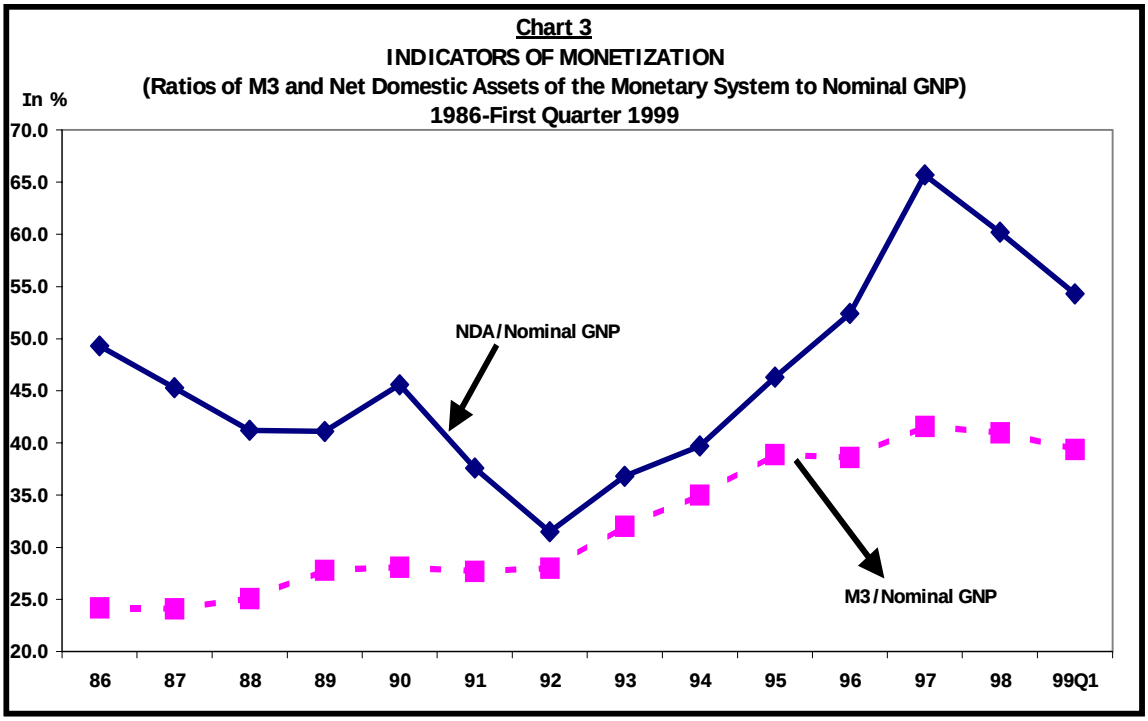


Chart 3
INDICATORS OF MONETIZATION
(Ratios of M3 and Net Domestic Assets of the Monetary System to Nominal GNP)
1986-First Quarter 1999
In %
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
NDA/Nominal GNP
M3/Nominal GNP
86
87
88
89
90
91
92
93
94
95
96
97
98
99Q1

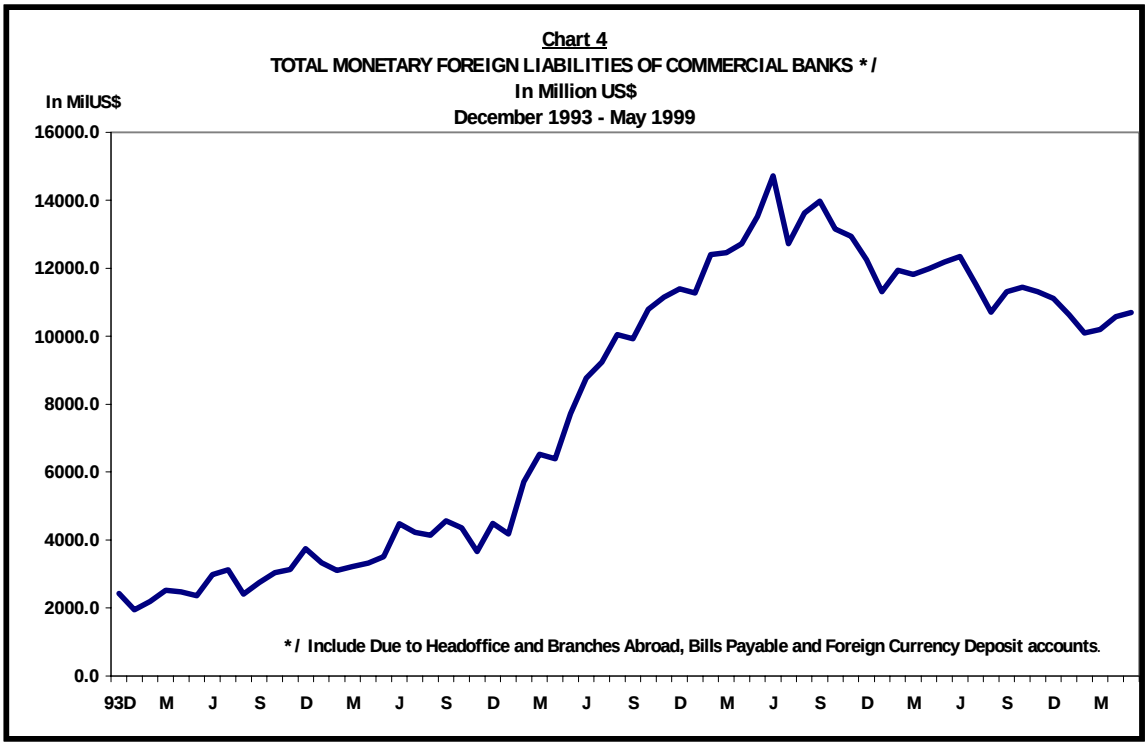


Chart 4
TOTAL MONETARY FOREIGN LIABILITIES OF COMMERCIAL BANKS */
In Million US$
December 1993 - May 1999
In MilUS$
16000.0
14000.0
12000.0
10000.0
8000.0
6000.0
4000.0
2000.0
0.0
*/ Include Due to Headoffice and Branches Abroad, Bills Payable and Foreign Currency Deposit accounts.
93D
M
J
S
D
M
J
S
D
M
J
S
D
M
J
S
D
M
J
S
D
M

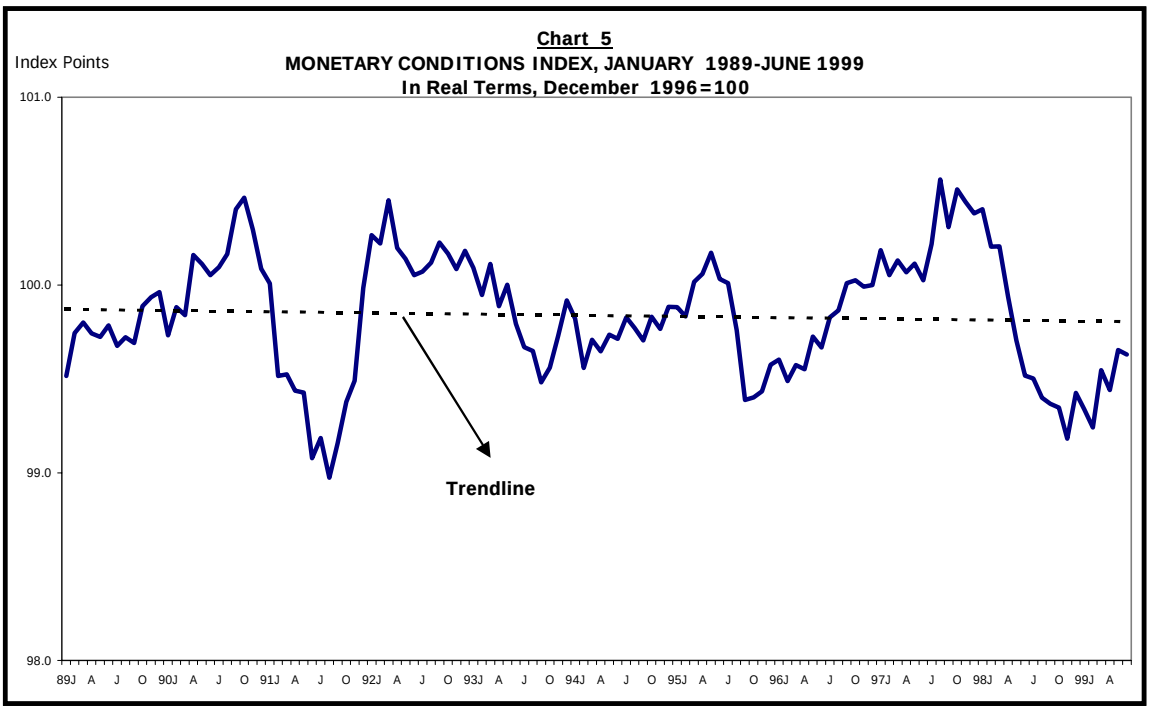


Chart 5
MONETARY CONDITIONS INDEX, JANUARY 1989-JUNE 1999
In Real Terms, December 1996=100
Index Points
101.0
100.0
99.0
98.0
Trendline
89J A J O 90J A J O 91J A J O 92J A J O 93J A J O 94J A J O 95J A J O 96J A J O 97J A J O 98J A J O 99J A

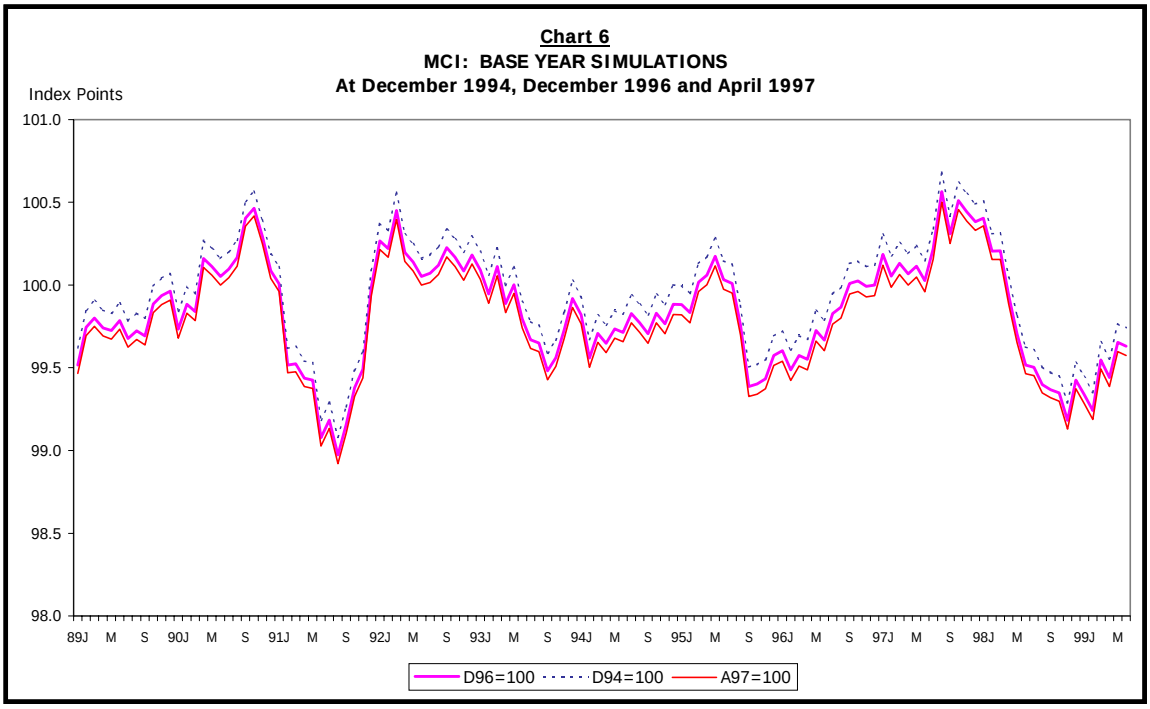


Chart 6
MCI: BASE YEAR SIMULATIONS
At December 1994, December 1996 and April 1997
Index Points
101.0
100.5
100.0
99.5
99.0
98.5
98.0
89J M S 90J M S 91J M S 92J M S 93J M S 94J M S 95J M S 96J M S 97J M S 98J M S 99J M
D96=100
D94=100
A97=100

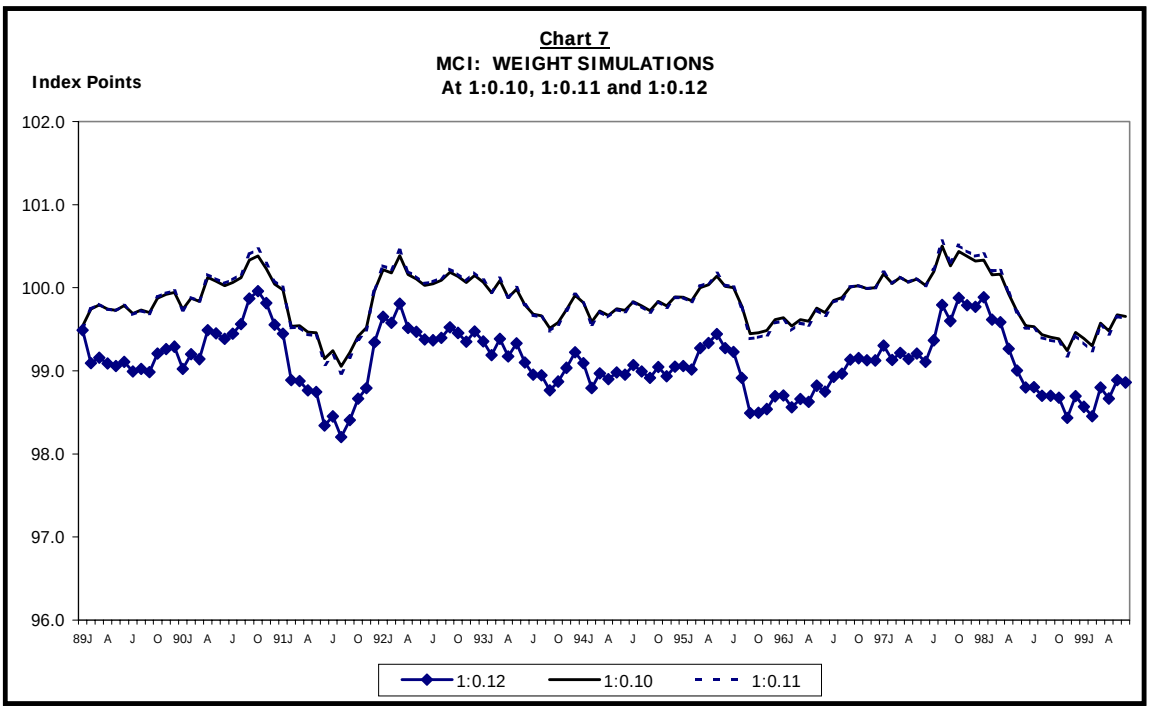


Chart 7
MCI: WEIGHT SIMULATIONS
At 1:0.10, 1:0.11 and 1:0.12
Index Points
102.0
101.0
100.0
99.0
98.0
97.0
96.0
89J A J O 90J A J O 91J A J O 92J A J O 93J A J O 94J A J O 95J A J O 96J A J O 97J A J O 98J A J O 99J A
1:0.12
1:0.10
1:0.11

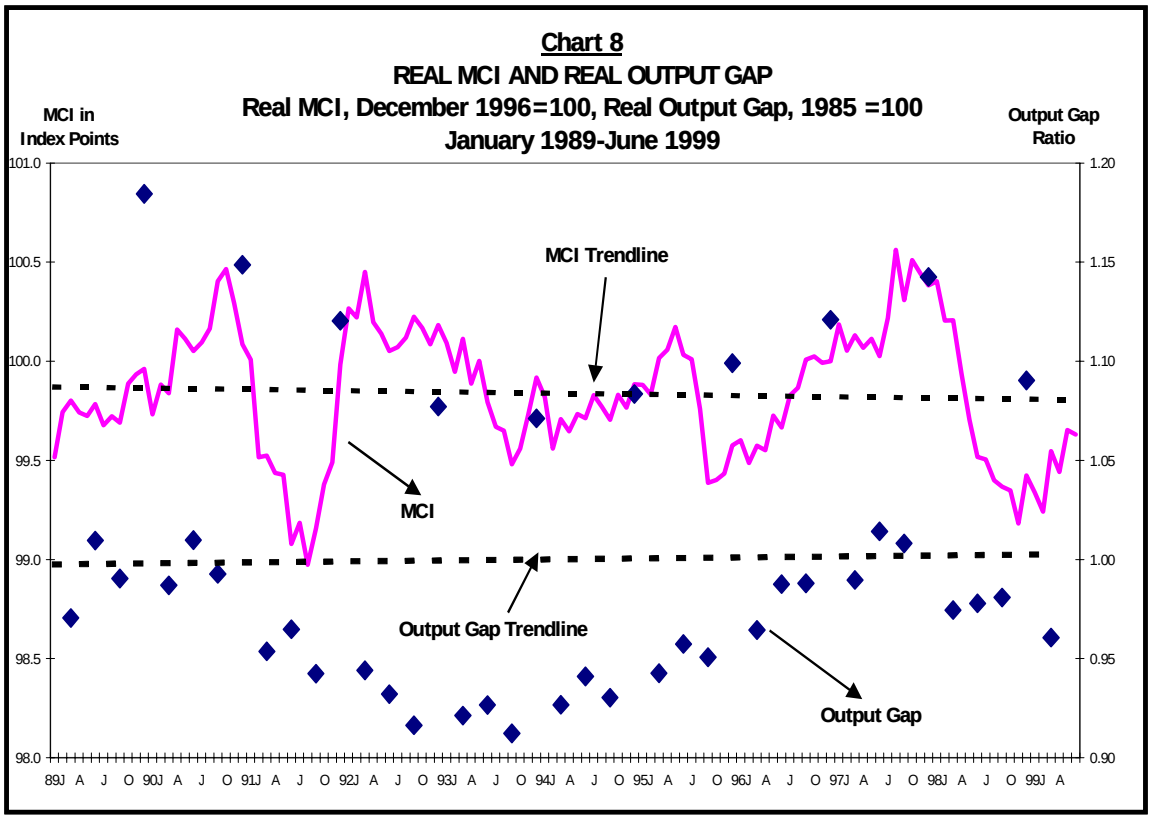


Chart 8
REAL MCI AND REAL OUTPUT GAP
Real MCI, December 1996=100, Real Output Gap, 1985 =100
January 1989-June 1999
MCI in Index Points
Output Gap Ratio
101.0
100.5
100.0
99.5
99.0
98.5
98.0
1.20
1.15
1.10
1.05
1.00
0.95
0.90
MCI Trendline
MCI
Output Gap Trendline
Output Gap
89J A J O 90J A J O 91J A J O 92J A J O 93J A J O 94J A J O 95J A J O 96J A J O 97J A J O 98J A J O 99J A

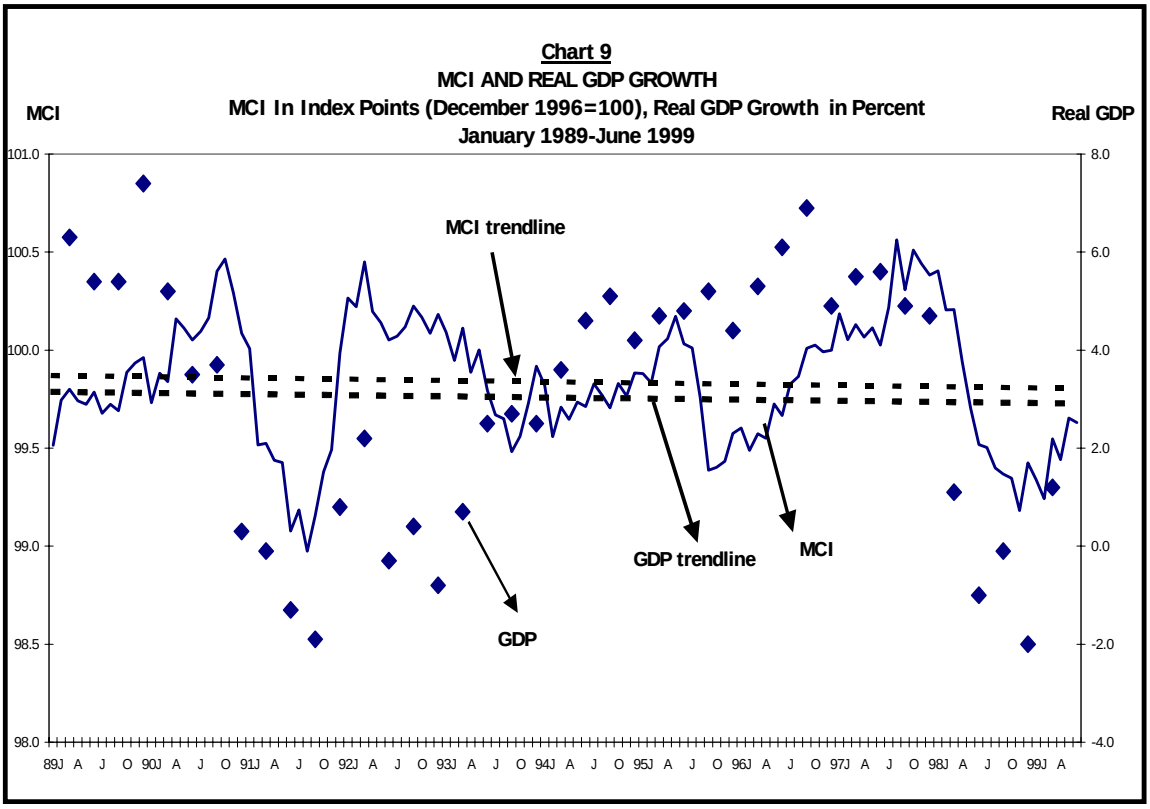


Chart 9
MCI AND REAL GDP GROWTH
MCI In Index Points (December 1996=100), Real GDP Growth in Percent
January 1989-June 1999
MCI
Real GDP
MCI trendline
GDP trendline
MCI
GDP
101.0
100.5
100.0
99.5
99.0
98.5
98.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
89J A J O 90J A J O 91J A J O 92J A J O 93J A J O 94J A J O 95J A J O 96J A J O 97J A J O 98J A J O 99J A

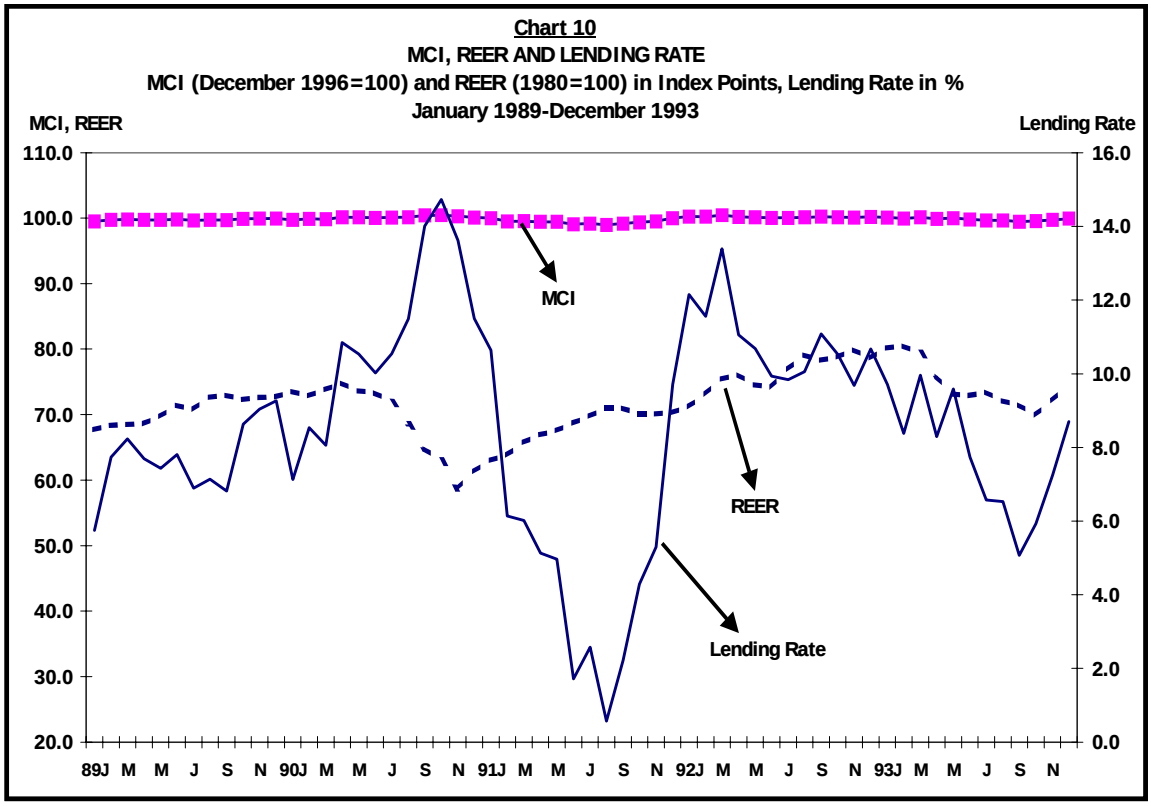


Chart 10
MCI, REER AND LENDING RATE
MCI (December 1996=100) and REER (1980=100) in Index Points, Lending Rate in %
January 1989-December 1993
MCI, REER
Lending Rate
MCI
REER
Lending Rate
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
89J M M J S N 90J M M J S N 91J M M J S N 92J M M J S N 93J M M J S N

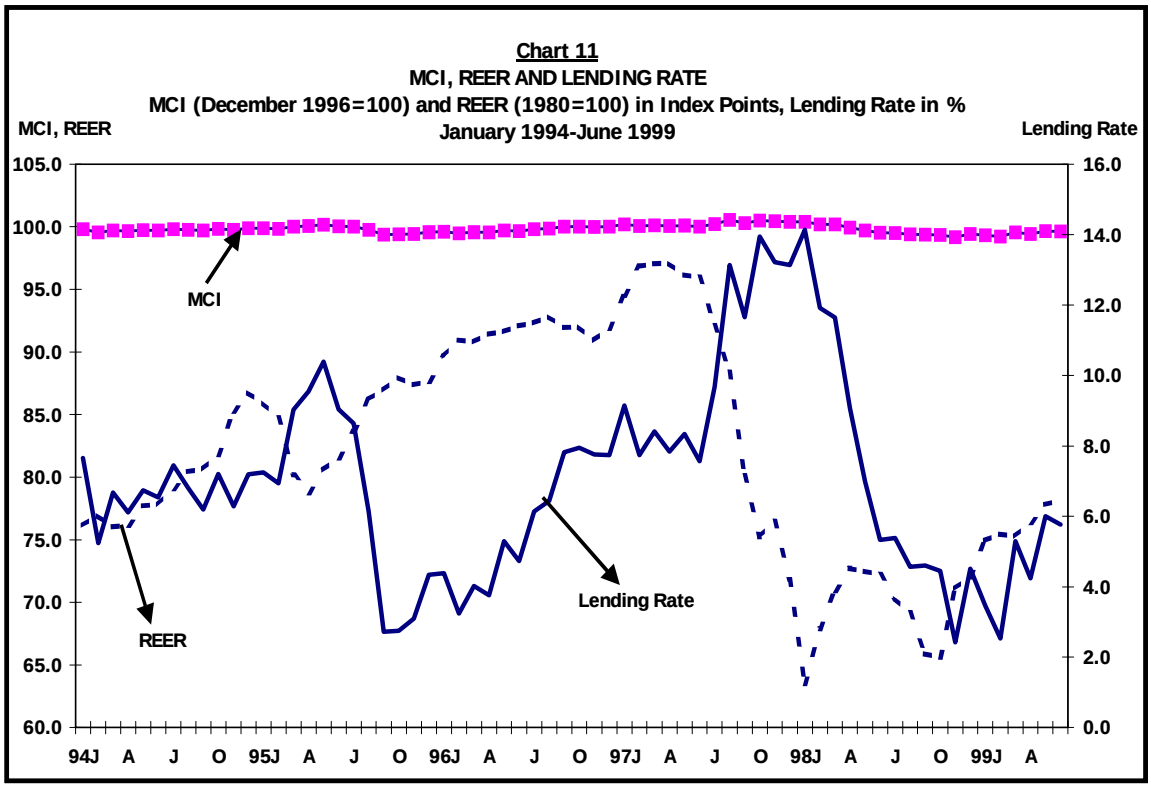


Chart 11
MCI, REER AND LENDING RATE
MCI (December 1996=100) and REER (1980=100) in Index Points, Lending Rate in %
January 1994-June 1999
MCI, REER
Lending Rate
105.0
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
MCI
REER
Lending Rate
94J A J O 95J A J O 96J A J O 97J A J O 98J A J O 99J A

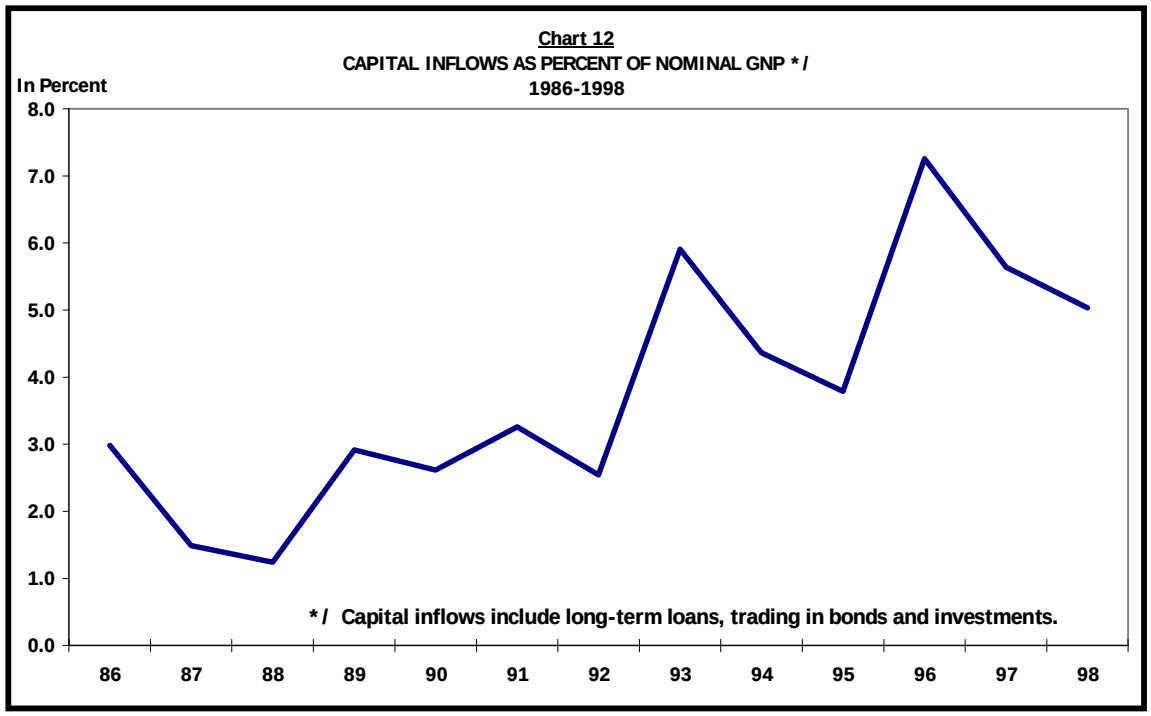


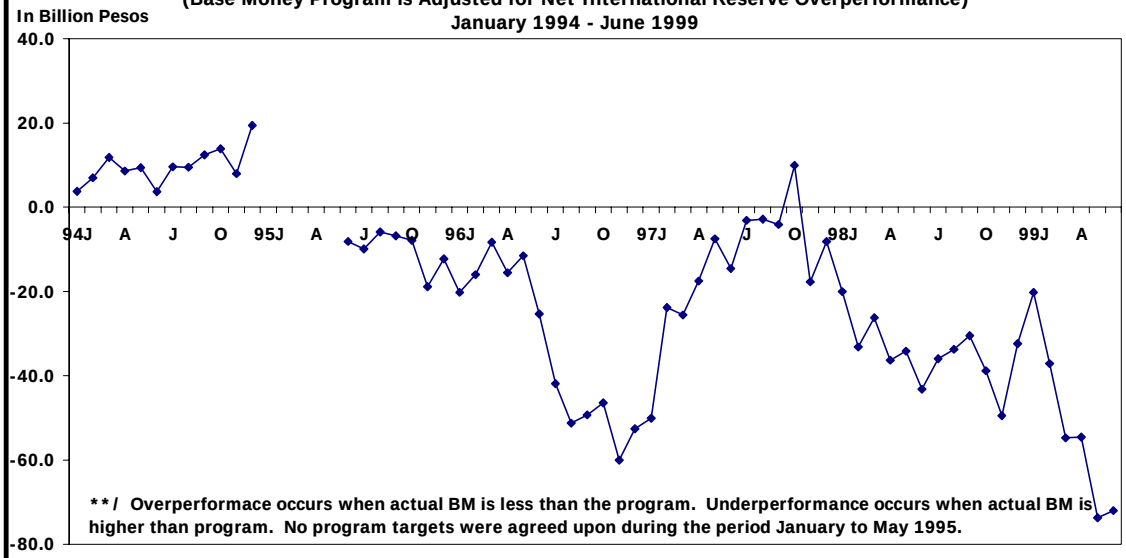
Chart 12
CAPITAL INFLOWS AS PERCENT OF NOMINAL GNP * /
1986-1998
In Percent
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
* / Capital inflows include long-term loans, trading in bonds and investments.
86 87 88 89 90 91 92 93 94 95 96 97 98

Chart 13

BASE MONEY OVERPERFORMANCE(-)/UNDERPERFORMANCE(+) WITH PROGRAM TARGETS WITH THE IMF **/

(Base Money Program is Adjusted for Net International Reserve Overperformance)

January 1994 - June 1999



****/ Overperformace occurs when actual BM is less than the program. Underperformance occurs when actual BM is higher than program. No program targets were agreed upon during the period January to May 1995.**

Chart 14

MCI, REER AND LENDING RATE

MCI (December 1996=100) and REER (1980=100) in Index Points, Lending Rate in %

January 1989-June 1999

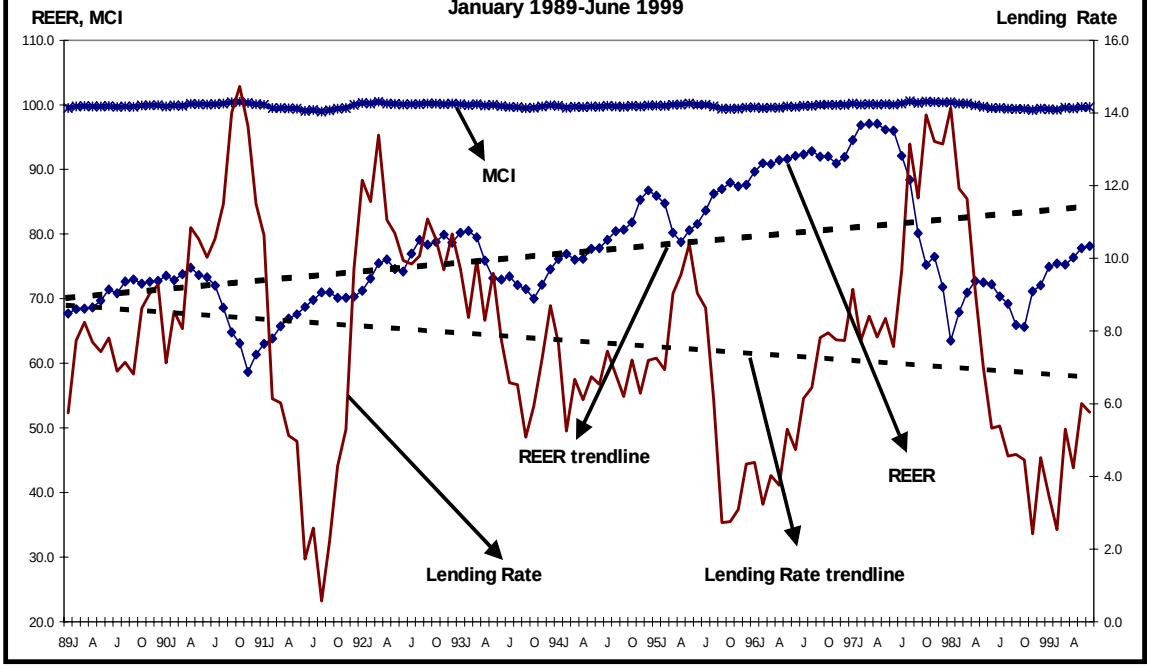


Figure 1

A FRAMEWORK FOR CONDUCT OF MONETARY POLICY

Goal or Ultimate Target

Intermediate Target

Operational Target

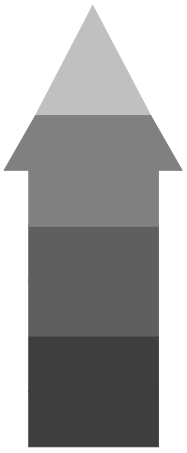
Instruments

Indicators or Information Variables

Source: The Use of Indicators and of Monetary Conditions Index in Canada, 1996.
Charles Freedman

Figure 2

THE PHILIPPINE MONETARY POLICY FRAMEWORK



Goals or Ultimate Targets
Price Stability, Growth

Intermediate Target
Domestic Liquidity

Operational Targets
Base Money and Reserve Money

Major Policy Instruments
Reserve Requirement, Open Market Operations, Rediscounting

Source: Bangko Sentral ng Pilipinas
Department of Economic Research

Figure 3
MONETARY PROGRAMMING IN THE PHILIPPINES

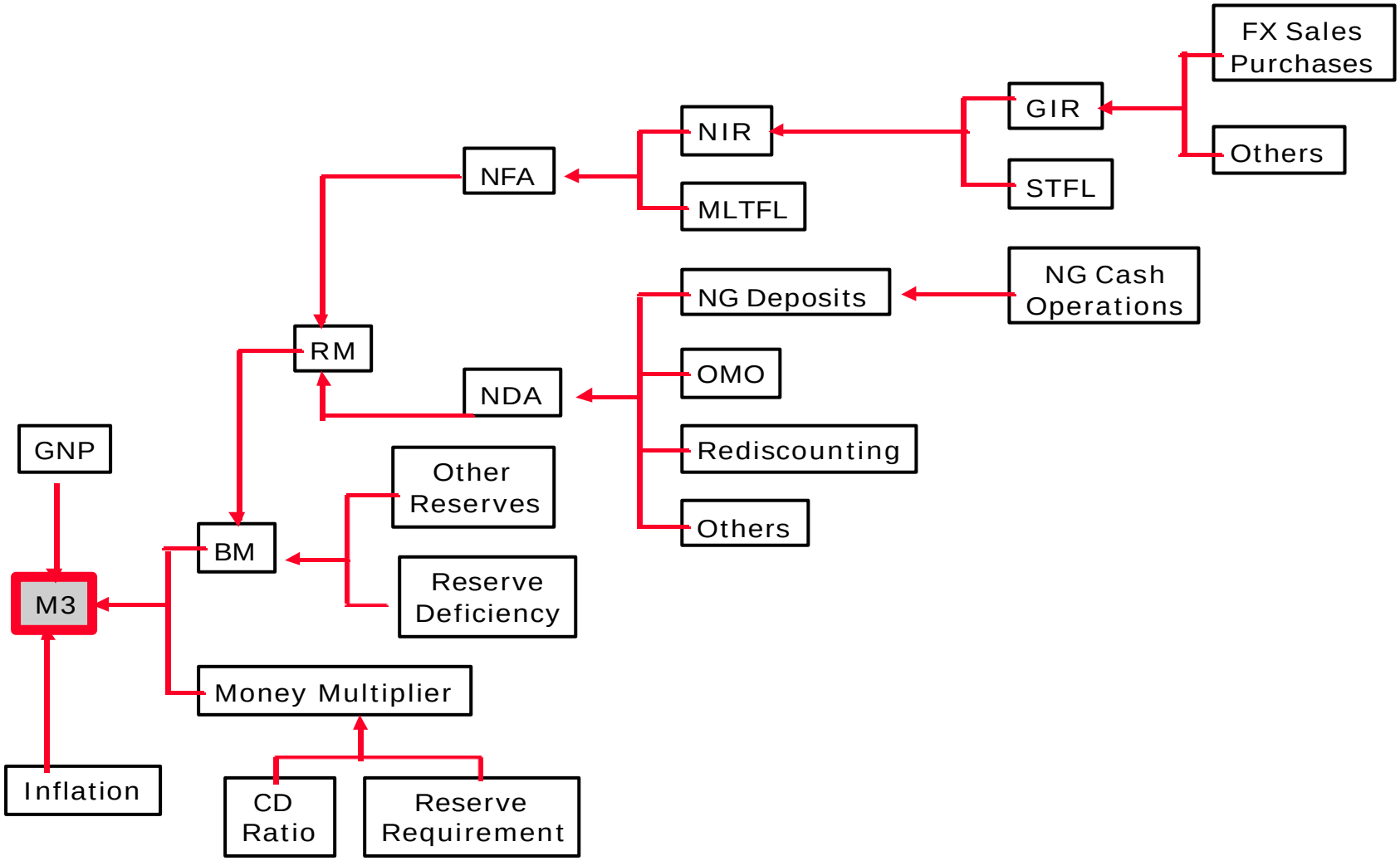
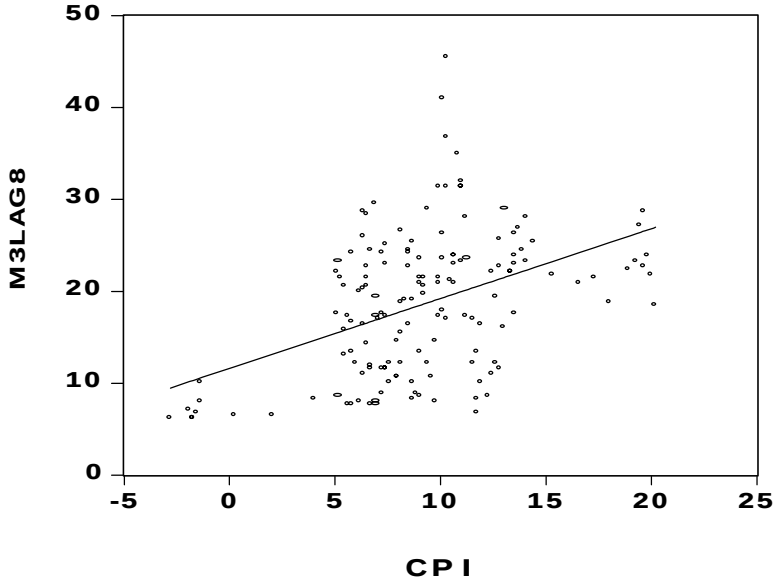


Figure 4a

SCATTER DIAGRAM: M3GROWTH VS CPIGROWTH
January 1986-May 1999



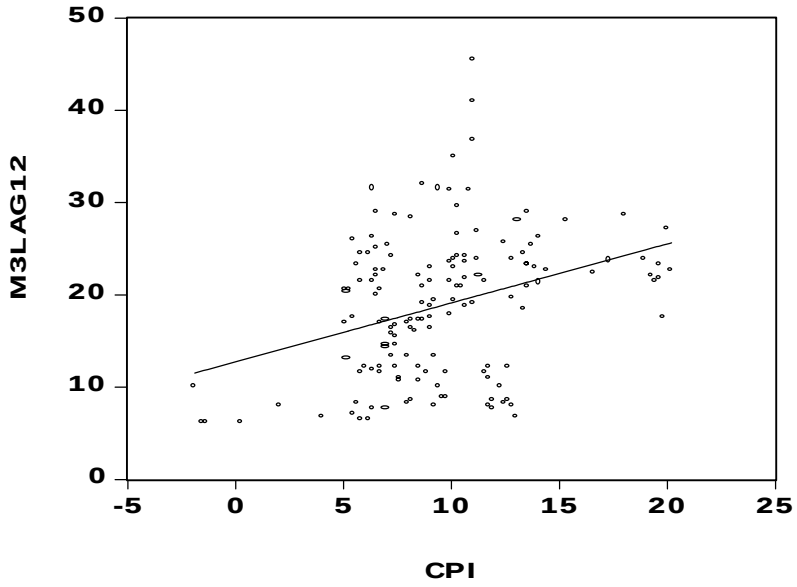
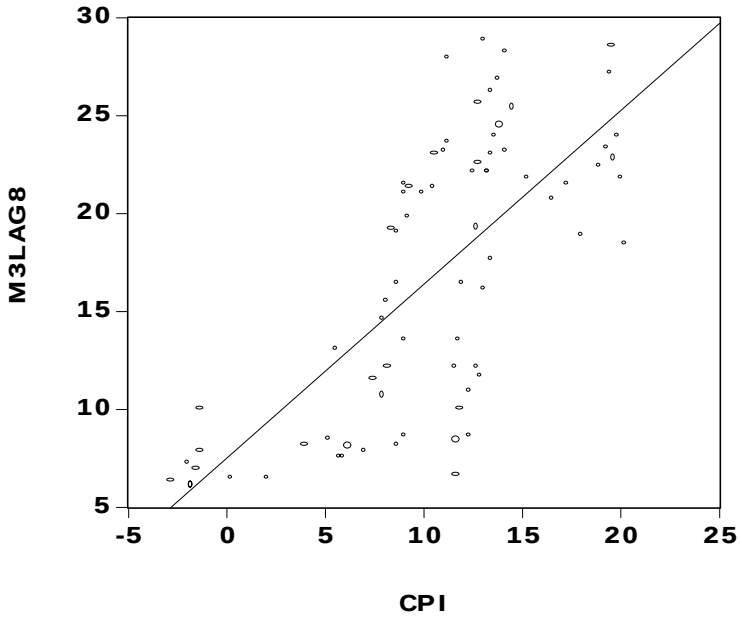


Figure 4b

SCATTER DIAGRAM: M3GROWTH VS CPIGROWTH
January 1986-December 1993



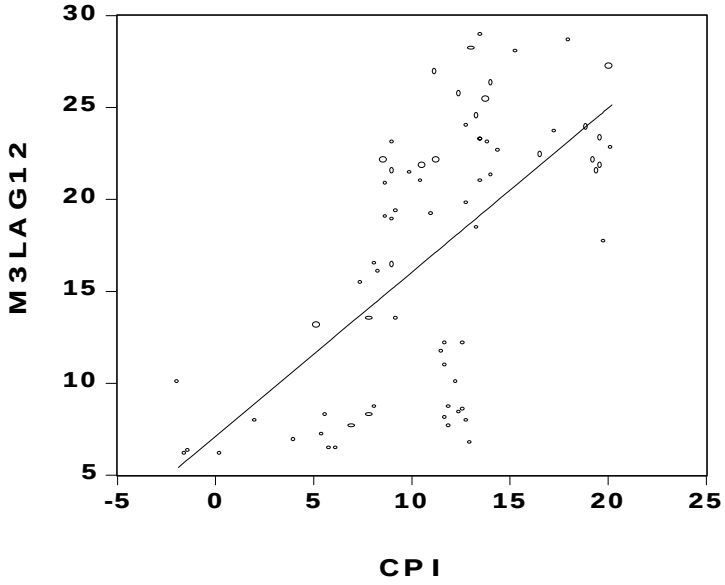
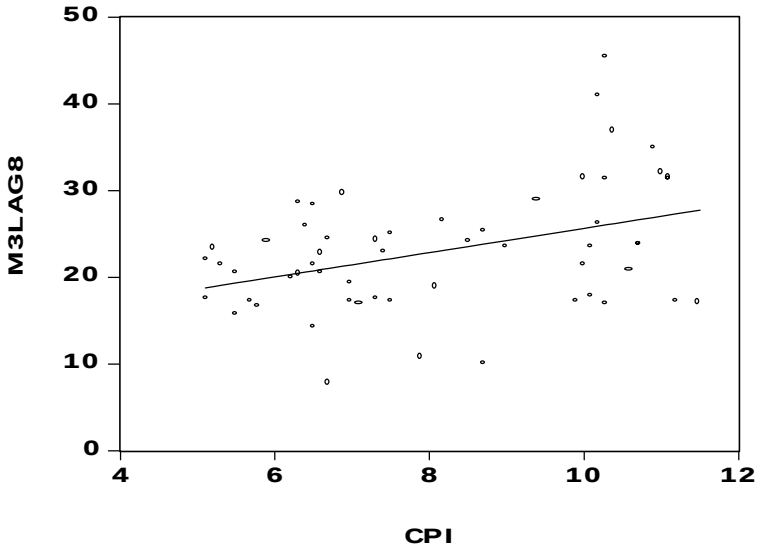


Figure 4c

SCATTER DIAGRAM: M3GROWTH VS CPIGROWTH
January 1994 - May 1999



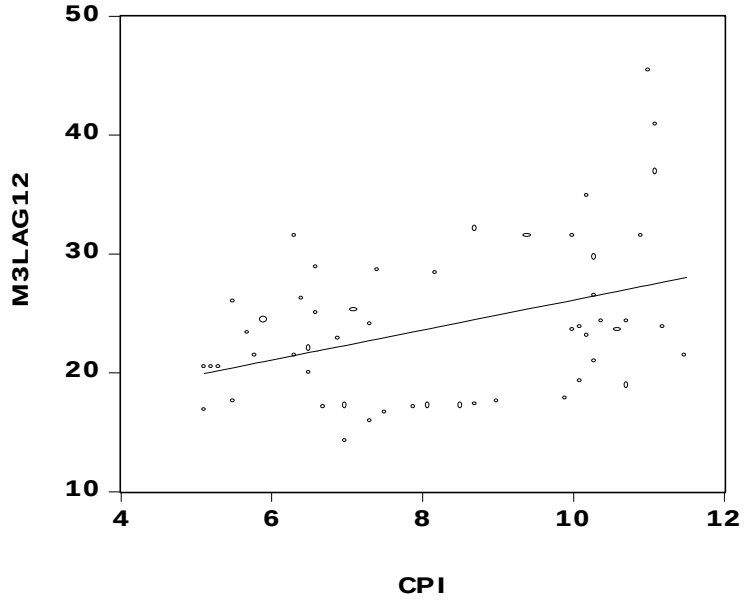
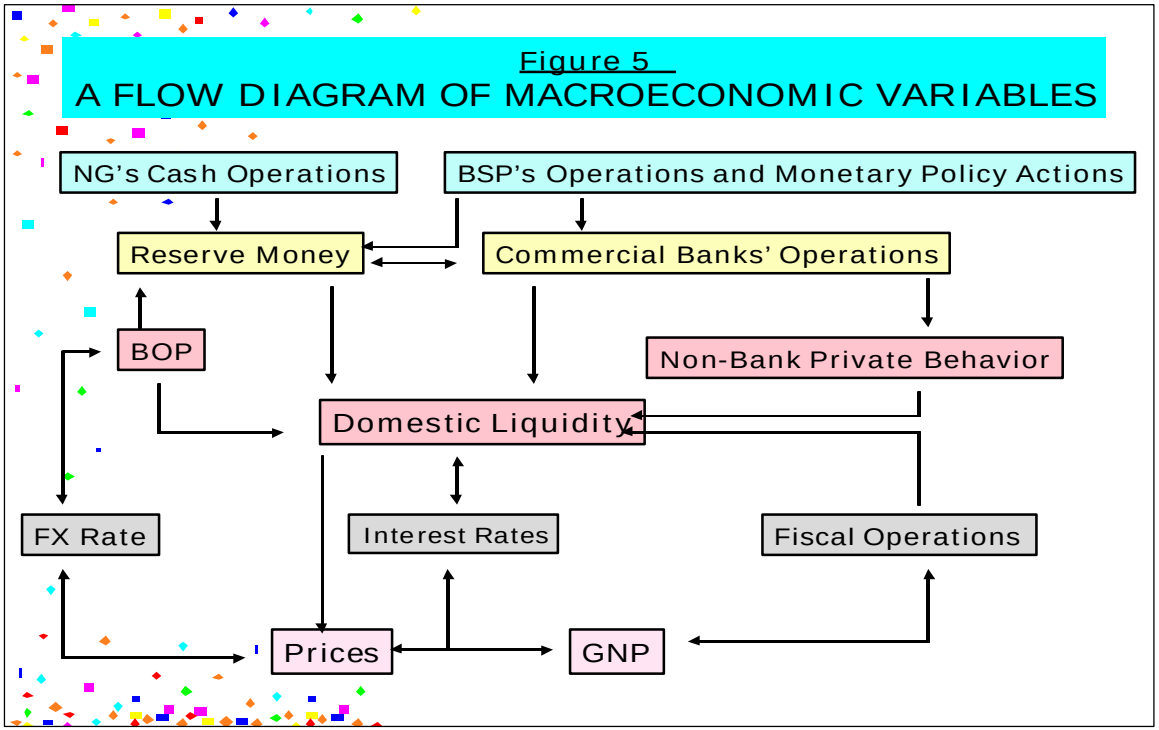


Figure 5

A FLOW DIAGRAM OF MACROECONOMIC VARIABLES



Source: Bangko Sentral ng Pilipinas-Department of Economic Research

Figure 6

SCATTER DIAGRAM: MCI VS OUTPUT GAP

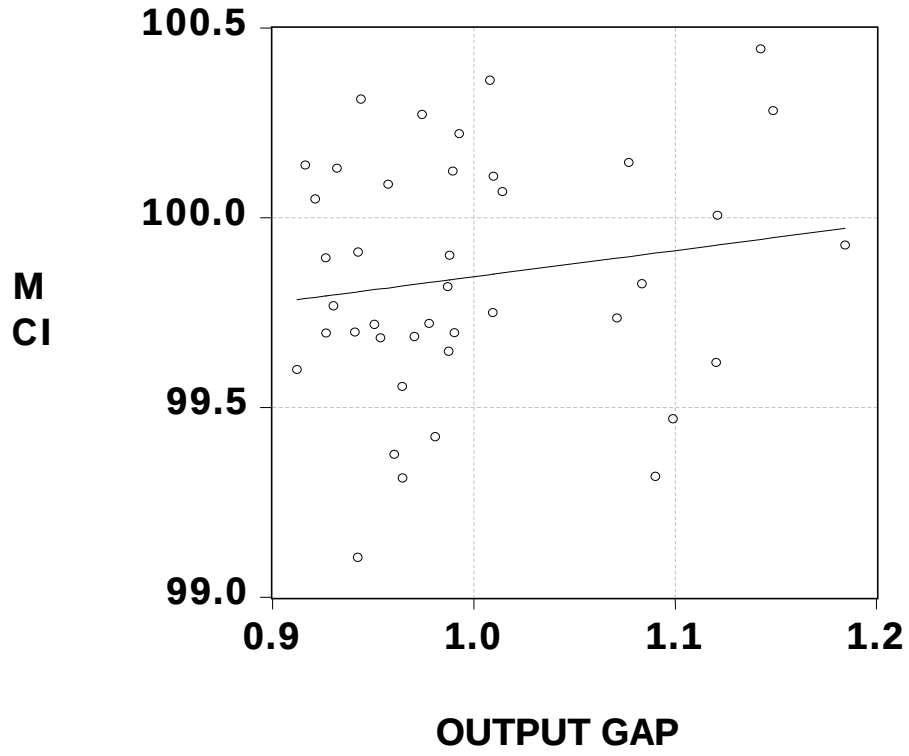
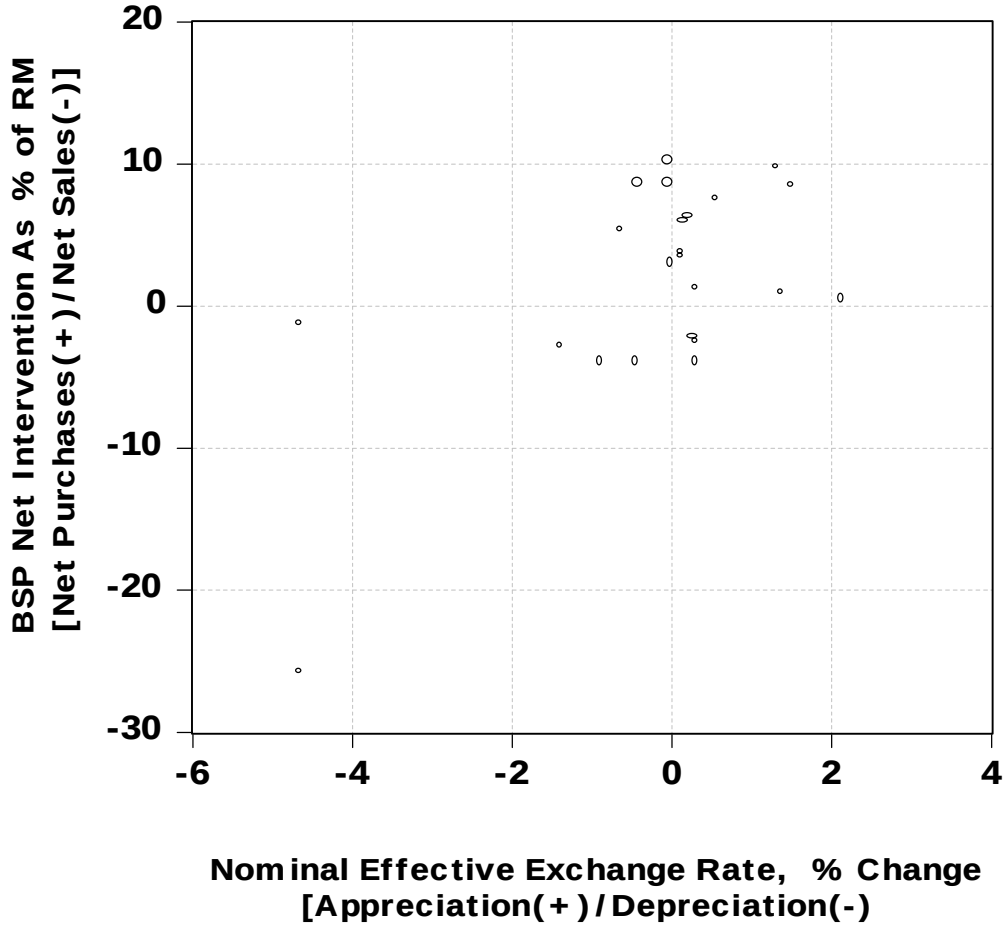


Figure 7

MONTHLY EXCHANGE RATE CHANGES AND BSP NET INTERVENTION
October 1995 – August 1997



TECHNICAL APPENDIX

TABLE 1a
AUGMENTED DICKEY-FULLER TESTS: SUMMARY

Variables	Results	Critical Value 5%	Critical Value 10%
GDP			
Level	-1.691	-2.938	-2.607
First Difference	-6.766	-2.940	-2.608
REERMAJOR			
Level	-2.282	-2.938	-2.607
First Difference	-4.181	-2.940	-2.608
BANK			
Level	-4.341	-2.938	-2.607
First Difference	-4.822	-2.940	-2.608
GOV			
Level	-1.406	-2.938	-2.607
First Difference	-6.722	-2.940	-2.608
USGDP			
Level	-2.822	-2.938	-2.607
First Difference	-3.365	-2.940	-2.608
GDRESID			
Level	-8.414	-2.967	-2.622
First Difference	-9.391	-2.971	-2.624

Table 1b

ADF Test Results: GDP

A. Levels

ADF Test Statistic	-1.691151	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 10/08/99 Time: 17:55
Sample(adjusted): 1989:3 1999:1
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.240266	0.142072	-1.691151	0.0994
D(GDP(-1))	-0.461932	0.153892	-3.001672	0.0049
C	49130.75	27758.19	1.769955	0.0852

R-squared	0.384071	Mean dependent var	1209.026
Adjusted R-squared	0.349853	S.D. dependent var	20723.82
S.E. of regression	16709.97	Akaike info criterion	22.35920
Sum squared resid	1.01E+10	Schwarz criterion	22.48717
Log likelihood	-433.0044	F-statistic	11.22416
Durbin-Watson stat	2.165443	Prob(F-statistic)	0.000163

B. First Differences

ADF Test Statistic	-6.765863	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 10/08/99 Time: 17:56
Sample(adjusted): 1989:4 1999:1
Included observations: 38 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.989003	0.293976	-6.765863	0.0000
D(GDP(-1),2)	0.256319	0.167677	1.528644	0.1353
C	3064.150	2808.283	1.091112	0.2827

R-squared	0.798166	Mean dependent var	-584.8947
Adjusted R-squared	0.786632	S.D. dependent var	36904.61
S.E. of regression	17046.88	Akaike info criterion	22.40098
Sum squared resid	1.02E+10	Schwarz criterion	22.53026
Log likelihood	-422.6186	F-statistic	69.20483
Durbin-Watson stat	2.347731	Prob(F-statistic)	0.000000

Table 1c

ADF Test Results: REERMAJOR

A. Levels

ADF Test Statistic	-2.281727	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REERMAJOR)
Method: Least Squares
Date: 10/08/99 Time: 18:03
Sample(adjusted): 1989:3 1999:1
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REERMAJOR(-1)	-0.159796	0.070033	-2.281727	0.0285
D(REERMAJOR(-1))	0.424134	0.153401	2.764874	0.0089
C	12.50207	5.459224	2.290082	0.0280

R-squared	0.227290	Mean dependent var	0.135974
Adjusted R-squared	0.184362	S.D. dependent var	4.214224
S.E. of regression	3.805979	Akaike info criterion	5.584827
Sum squared resid	521.4770	Schwarz criterion	5.712793
Log likelihood	-105.9041	F-statistic	5.294647
Durbin-Watson stat	1.870785	Prob(F-statistic)	0.009645

B. First Difference

ADF Test Statistic	-4.181383	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REERMAJOR,2)
Method: Least Squares
Date: 10/08/99 Time: 18:04
Sample(adjusted): 1989:4 1999:1
Included observations: 38 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REERMAJOR(-1))	-0.808317	0.193313	-4.181383	0.0002
D(REERMAJOR(-1),2)	0.229232	0.167999	1.364485	0.1811
C	0.086170	0.651502	0.132264	0.8955

R-squared	0.352882	Mean dependent var	0.089474
Adjusted R-squared	0.315904	S.D. dependent var	4.855641
S.E. of regression	4.016107	Akaike info criterion	5.694160
Sum squared resid	564.5190	Schwarz criterion	5.823443
Log likelihood	-105.1890	F-statistic	9.542969
Durbin-Watson stat	1.972771	Prob(F-statistic)	0.000492

Table 1d

ADF Test Results: BANK

A. Levels

ADF Test Statistic	-4.341378	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BANK)
Method: Least Squares
Date: 10/08/99 Time: 17:59
Sample(adjusted): 1989:3 1999:1
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BANK(-1)	-0.545887	0.125741	-4.341378	0.0001
D(BANK(-1))	0.533793	0.147368	3.622189	0.0009
C	4.268322	1.047876	4.073307	0.0002

R-squared	0.381746	Mean dependent var	-0.096667
Adjusted R-squared	0.347399	S.D. dependent var	2.427648
S.E. of regression	1.961145	Akaike info criterion	4.258737
Sum squared resid	138.4592	Schwarz criterion	4.386703
Log likelihood	-80.04537	F-statistic	11.11427
Durbin-Watson stat	2.133187	Prob(F-statistic)	0.000174

B. First Difference

ADF Test Statistic	-4.822364	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BANK,2)
Method: Least Squares
Date: 10/08/99 Time: 18:00
Sample(adjusted): 1989:4 1999:1
Included observations: 38 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BANK(-1))	-0.966380	0.200395	-4.822364	0.0000
D(BANK(-1),2)	0.272069	0.162814	1.671043	0.1036
C	-0.073007	0.383403	-0.190418	0.8501

R-squared	0.426168	Mean dependent var	0.016316
Adjusted R-squared	0.393377	S.D. dependent var	3.031167
S.E. of regression	2.360854	Akaike info criterion	4.631581
Sum squared resid	195.0771	Schwarz criterion	4.760864
Log likelihood	-85.00003	F-statistic	12.99672
Durbin-Watson stat	2.130239	Prob(F-statistic)	0.000060

Table 1e

ADF Test Results: GOV

A. Levels

ADF Test Statistic	-1.406453	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GOV)
Method: Least Squares
Date: 10/08/99 Time: 18:05
Sample(adjusted): 1989:3 1999:1
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GOV(-1)	-0.089911	0.063927	-1.406453	0.1682
D(GOV(-1))	-0.140205	0.162305	-0.863837	0.3934
C	1548.238	996.5538	1.553592	0.1290

R-squared	0.079940	Mean dependent var	134.2308
Adjusted R-squared	0.028826	S.D. dependent var	651.2851
S.E. of regression	641.8296	Akaike info criterion	15.84033
Sum squared resid	14830028	Schwarz criterion	15.96829
Log likelihood	-305.8864	F-statistic	1.563944
Durbin-Watson stat	2.048421	Prob(F-statistic)	0.223198

B. First Difference

ADF Test Statistic	-6.722318	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GOV,2)
Method: Least Squares
Date: 10/08/99 Time: 18:06
Sample(adjusted): 1989:4 1999:1
Included observations: 38 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GOV(-1))	-1.597324	0.237615	-6.722318	0.0000
D(GOV(-1),2)	0.375527	0.157190	2.389005	0.0224
C	194.2030	103.8411	1.870193	0.0698

R-squared	0.643736	Mean dependent var	-5.394737
Adjusted R-squared	0.623378	S.D. dependent var	997.2545
S.E. of regression	612.0101	Akaike info criterion	15.74703
Sum squared resid	13109473	Schwarz criterion	15.87631
Log likelihood	-296.1936	F-statistic	31.62092
Durbin-Watson stat	2.327677	Prob(F-statistic)	0.000000

Table 1f

ADF Test Results: USGDP

A. Levels

ADF Test Statistic	2.822141	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(USGDP)
Method: Least Squares
Date: 10/08/99 Time: 19:53
Sample(adjusted): 1989:3 1999:1
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
USGDP(-1)	0.016897	0.005987	2.822141	0.0077
D(USGDP(-1))	0.015079	0.166999	0.090294	0.9286
C	-30.40314	37.42522	-0.812370	0.4219

R-squared	0.221283	Mean dependent var	87.06667
Adjusted R-squared	0.178021	S.D. dependent var	35.81667
S.E. of regression	32.47248	Akaike info criterion	9.872466
Sum squared resid	37960.63	Schwarz criterion	10.00043
Log likelihood	-189.5131	F-statistic	5.114956
Durbin-Watson stat	2.011357	Prob(F-statistic)	0.011087

B. First Differences

ADF Test Statistic	-3.365158	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(USGDP,2)
Method: Least Squares
Date: 10/08/99 Time: 19:53
Sample(adjusted): 1989:4 1999:1
Included observations: 38 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(USGDP(-1))	-0.745552	0.221550	-3.365158	0.0019
D(USGDP(-1),2)	-0.031562	0.176214	-0.179114	0.8589
C	65.57433	19.80594	3.310841	0.0022

R-squared	0.378584	Mean dependent var	1.415789
Adjusted R-squared	0.343074	S.D. dependent var	44.76095
S.E. of regression	36.27918	Akaike info criterion	10.09602
Sum squared resid	46066.26	Schwarz criterion	10.22530
Log likelihood	-188.8244	F-statistic	10.66147
Durbin-Watson stat	1.997432	Prob(F-statistic)	0.000242

Table 1g

ADF Test Results: GDPRESID

A. Levels

ADF Test Statistic	-8.413613	1% Critical Value*	-3.6752
		5% Critical Value	-2.9665
		10% Critical Value	-2.6220

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPRESID)
Method: Least Squares
Date: 10/08/99 Time: 18:12
Sample(adjusted): 1992:1 1999:1
Included observations: 29 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPRESID(-1)	-1.713935	0.203710	-8.413613	0.0000
D(GDPRESID(-1))	0.544959	0.139612	3.903375	0.0006
C	-0.006323	0.008441	-0.749033	0.4606

R-squared	0.754704	Mean dependent var	-0.004037
Adjusted R-squared	0.735836	S.D. dependent var	0.088308
S.E. of regression	0.045388	Akaike info criterion	-3.249453
Sum squared resid	0.053561	Schwarz criterion	-3.108009
Log likelihood	50.11707	F-statistic	39.99730
Durbin-Watson stat	1.779321	Prob(F-statistic)	0.000000

B. First Difference

ADF Test Statistic	-9.391397	1% Critical Value*	-3.6852
		5% Critical Value	-2.9705
		10% Critical Value	-2.6242

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPRESID,2)
Method: Least Squares
Date: 10/08/99 Time: 18:14
Sample(adjusted): 1992:2 1999:1
Included observations: 28 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPRESID(-1))	-1.959941	0.208695	-9.391397	0.0000
D(GDPRESID(-1),2)	0.554759	0.131221	4.227683	0.0003
C	0.001261	0.010947	0.115201	0.9092

R-squared	0.826369	Mean dependent var	0.010717
Adjusted R-squared	0.812478	S.D. dependent var	0.133339
S.E. of regression	0.057741	Akaike info criterion	-2.764740
Sum squared resid	0.083351	Schwarz criterion	-2.622003
Log likelihood	41.70636	F-statistic	59.49160
Durbin-Watson stat	2.724181	Prob(F-statistic)	0.000000

TABLE 2a
THE ESTIMATION RESULTS

	Model A 1/	Model B 2/	Model C 3/	
	DLNGDP	DLNGDP	DLNGDP	
A. Variables				
Constant	0.007	-0.029	0.004	
DREERMAJOR(-8)	-0.588	-0.586	-0.521	(-8)
DLNBANK(-9)	-0.065	-0.062	0.033	(-8)
DLNGOV(-6)	1.411	1.309	1.273	
DLNUSGDP		2.899		
DLNGDP(-3)	-0.425	-0.442	-0.407	
B. Diagnostic Tests				
R2 (Adjusted)	0.585	0.592	0.487	
Durbin Watson	2.024	2.092	2.177	
Durbin Watson h	-0.115	-0.439	-1.113	
F-Statistics	11.569	9.722	8.345	
C. MCI Ratio: (reermajor/bank)	9.046	9.386	-15.641	
Wreermajor	0.900	0.904	1.068	
Wbank	0.100	0.096	-0.068	

1/ Excludes USGDP as indicator of foreign economic activity.
2/ Includes USGDP as indicator of foreign economic activity.
3/ REERMAJOR and BANK are assumed to have the same lag effects on real GDP.

Table 2b

Summary of Results: Model A

Dependent Variable: DLNGDP
Method: Least Squares
Date: 10/08/99 Time: 17:51
Sample(adjusted): 1991:3 1999:1
Included observations: 31 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006943	0.012261	0.566306	0.5760
DREERMAJOR(-8)	-0.587587	0.285655	-2.056983	0.0498
DLNBANK(-9)	-0.065467	0.029788	-2.197769	0.0371
DLNGOV(-6)	1.411475	0.382454	3.690576	0.0010
DLNGDP(-3)	-0.424538	0.116294	-3.650558	0.0012

R-squared	0.640265	Mean dependent var	0.007213
Adjusted R-squared	0.584921	S.D. dependent var	0.100373
S.E. of regression	0.064667	Akaike info criterion	-2.492443
Sum squared resid	0.108727	Schwarz criterion	-2.261155
Log likelihood	43.63287	F-statistic	11.56885
Durbin-Watson stat	2.023667	Prob(F-statistic)	0.000016

Table 2c

Summary of Results: Model B

Dependent Variable: DLNGDP
Method: Least Squares
Date: 10/08/99 Time: 19:47
Sample(adjusted): 1991:3 1999:1
Included observations: 31 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.028662	0.031685	-0.904587	0.3743
DREERMAJOR(-8)	-0.585725	0.283056	-2.069292	0.0490
DLNBANK(-9)	-0.062407	0.029623	-2.106676	0.0454
DLNGOV(-6)	1.309459	0.388133	3.373737	0.0024
DLNUSGDP(-6)	2.899009	2.382663	1.216709	0.2351
DLNGDP(-3)	-0.441633	0.116088	-3.804304	0.0008

R-squared	0.660376	Mean dependent var	0.007213
Adjusted R-squared	0.592451	S.D. dependent var	0.100373
S.E. of regression	0.064078	Akaike info criterion	-2.485456
Sum squared resid	0.102649	Schwarz criterion	-2.207910
Log likelihood	44.52456	F-statistic	9.722159
Durbin-Watson stat	2.091761	Prob(F-statistic)	0.000030

Table 2d

Summary of Results: Model C

Dependent Variable: DLNGDP
Method: Least Squares
Date: 10/08/99 Time: 18:23
Sample(adjusted): 1991:2 1999:1
Included observations: 32 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003872	0.013597	0.284772	0.7780
DREERMAJOR(-8)	-0.521327	0.321159	-1.623267	0.1162
DLNBANK(-8)	0.033307	0.036932	0.901843	0.3751
DLNGOV(-6)	1.273356	0.394489	3.227863	0.0033
DLNGDP(-3)	-0.407258	0.134429	-3.029536	0.0053

R-squared	0.552830	Mean dependent var	0.007453
Adjusted R-squared	0.486582	S.D. dependent var	0.098750
S.E. of regression	0.070758	Akaike info criterion	-2.316511
Sum squared resid	0.135179	Schwarz criterion	-2.087490
Log likelihood	42.06418	F-statistic	8.344917
Durbin-Watson stat	2.177165	Prob(F-statistic)	0.000162

REFERENCES

Bank for International Settlements (1998), "The Transmission Mechanism of Monetary Policy in Emerging Market Economies," *Policy Paper* No. 3, January, at the net, http://www.bis.org/publ/plcy03.htm.

Bangko Sentral ng Pilipinas (1993), The New Central Bank Act. Republic Act No. 7653.

Bangko Sentral ng Pilipinas (1998), Selected Philippine Economic Indicators, Year-book.

Bangko Sentral ng Pilipinas (1997), Department of Economic Research Memorandum to the Monetary Board, "On Expanding the Measure of Liquidity," Unpublished, 17 January.

Bank of Korea (1998), "Korea's Experience of the Monetary Transmission Mecha-nism," paper presented at the BIS conference on the Transmission of Monetary Pol-icy in Emerging Market Economies, Basle, Switzerland, January, at the net, http://www.bis.org/publ/plcy03.htm

Central Bank of the Philippines (1992), Circular No. 1353, August.

Chami, Ralph, T. Cosimano, C. Fullenkamp (1999), "The Stock Market Channel of Monetary Policy," IMF Working Paper WP/99/22, February.

Debelle, Guy and Cheng Hoon Lim (1998), "Preliminary Considerations of An Infla-tion Targeting Framework for the Philippines," IMF Working Paper WP/98/39, March.

Dennis, Richard (1997), "A Measure of Monetary Conditions," Reserve Bank of New Zealand Discussion Paper Series No. G97/1, January.

Dornbusch, R., S. Fischer, R. Startz (1998), Macroeconomics, 7th edition, Irwin McGraw-Hill.

Duguay, Pierre (1996), "Empirical Evidence on the Strength of the Monetary Trans-mission in Canada: An Aggregate Approach," Bank of Canada, at the net, http://www.bank-banque-canada.ca/english/new.htm

Eika, Kari, Neil Ericsson, and Ragnar Nymoen (1996), "Hazards in Implementing a Monetary Conditions Index," Board of Governors of the Federal Reserve System, International Finance Discussion Paper No. 568, October.

Fischer, Stanley (1997), “Capital Account Liberalization and the Role of the IMF,” paper presented at the seminar Asia and the IMF, Hong Kong, China, 19 September.

Freedman, Charles (1996), “ The Use of Indicators and of the Monetary Conditions Index in Canada," Bank of Canada, at the net, http://www.bank-banque-canada.ca/english/res/herm-98.htm.

Freedman, Charles (1995), “The Role of Monetary Conditions and the Monetary Conditions Index in the Conduct of Policy," Bank of Canada Review (Autumn).

Friedman, Milton (1961), “The Lag in Effect of Monetary Policy,” *The Journal of Political Economy*, Volume LXIX, The University of Chicago Press, February – December.

Ghatak, Subrata, Nigel Healey, Peter Jackson (1992), *The Macroeconomic Environment*, Oxford: Oxford University Press.

Gonzalez-Hermosillo, Brenda and Takatoshi Ito (1997), “The Bank of Canada’s Monetary Policy Framework: Have Recent Changes Enhanced Central Bank Credibility?”, IMF Working Paper WP/91/171, December.

Gujarati, Damodar N. (1988), *Basic Econometrics*, 2nd edition, McGraw-Hill International Editions.

Hataiseree, Rungsun (1998), “Monetary Conditions and Monetary Policy in Small Open Economies: Empirical Results for Thailand under Floating Exchange Rate Regime,” paper presented during the International Conference on A Macroeconomic Core of An Open Economy for Progressive Industrialization and Development in Asia in the New Millennium, Bangkok, Thailand, 16-18 December.

Houben, Aerdt C.F.J. (1997), “Exchange Rate Policy and Monetary Strategy Options in the Philippines - The Search for Stability and Sustainability,” IMF Paper on Policy Analysis and Assessment PPAA/97/4, May.

International Monetary Fund (1992), “Macroeconomic Adjustment: Policy Instruments and Issues,” IMF Institute, August.

International Monetary Fund (1995) Philippines: Background Paper, IMF Staff Country Report No. 95/114, November.

International Monetary Fund (1996) World Economic Outlook, May.

International Monetary Fund (1999) World Economic Outlook, October.

Irvin, George, "Introductory Aggregate Economics," Lecture Notes on Macroeconomics of Development (INT 107), Term I (1998), Institute of Social Studies.

Jansen, Karel (1999), "Thailand, Financial Crisis and Monetary Policy," Institute of Social Studies, October.

Jha, Raghbendra (1994), *Macroeconomics for Developing Countries*, London: Routledge.

King, M. (1997), "Monetary Policy and the Exchange Rate," Bank of England, speech delivered at the National Institute of Economic and Social Research , London, 27 February.

Krugman, Paul, J. Alm, S. Collins, E. Remolona (1992), "Transforming the Philippine Economy," NEDA/United Nations Development Program Report, Pasig City, Philippines, June.

Larsen, Flemming (1999), "Global Economic and Financial Developments in the 1990s and Implication for Monetary Policy," speech delivered before the 27th Economics Conference (Possibilities and Limitations of Monetary Policy), Oesterreichische Nationalbank, Vienna, 10-11 June, at the net, http://www.imf.org/external/np/speeche/1999/061199.HTM.

Lim, Cheng Hoon (1998), "Philippines: Monetary Conditions Index," Unpublished IMF Memorandum, 29 April.

Mayes, D. and M. Viren (1998), " A Monetary Conditions Indicator for the EURO Area," Bank of Finland.

Mukherjee, C., H. White, M. Wuyts (1998), *Econometrics and Data Analysis for Developing Countries*, London: Routledge.

Maddala, G.S. (1992), *Introduction to Econometrics*, 2nd edition, New Jersey: Prentice Hall, Inc.

Mishkin, Frederic, S. (1996), "The Channels of Monetary Transmission: Lessons for Monetary Policy," National Bureau of Economic Research (NBER) Working Paper No. 5464, February.

Nadal-De Simone, F., R. Dennis, P. Redward, P. (1996), "A Monetary Conditions Index for New Zealand," Reserve Bank of New Zealand Discussion Paper Series No. G96/2, July.

National Economic and Development Authority (1998), Five-Year Development Plan: The Philippine Capital Market.

Organisation for Economic Cooperation and Development (OECD) (1996) Economic Outlook, June.

Peeters, Marga (1999), "Measuring Monetary Conditions in Europe: Use and Limitations of the MCI," *De Economist (Quarterly Review of the Royal Netherlands Economic Association)*, Volume 147, No. 2, June.

Philippine Star, 7 July 1999, at the net, http:// www.philstart.com/datedata/7Jul.

Sachs, J. and F. Larrain (1993), *Macroeconomics In the Global Economy*, New York: Harvester Wheatsheaf.

Smets, Frank (1997), "Financial Asset Prices and Monetary Policy: Theory and Evidence," Working Paper No. 47, BIS, Monetary and Economic Department, September.

Stevens, G.R. (1998), "Pitfalls in the Use of Monetary Conditions Indexes," Reserve Bank of Australia Bulletin, August.

Stone, Mark (1998), "Financial Infusion and Exiting from a Money Rule," IMF Working Paper WP/98/31, March.

The Economist (1999), "Australia and New Zealand. G'day, Goldilocks," March 6-12.

The Philippine Inquirer (1999), 3 July, at the net, http://www.inquirer.net/issues/oct99/oct24/news/news.

The Philippine Daily Inquirer (1999), 24 October, at the net, http://www.inquirer.net/issues/oct99/oct24/news/news.

Thiessen, Gordon G. (1996), "Uncertainty and the Transmission of Monetary Policy in Canada," Bank of Canada, at the net, http://www.bank-banque-canada.ca/english/new.htm.

Tseng, Wanda and Robert Corker (1991), "Financial Liberalization, Money Demand and Monetary Policy in Asian Countries," IMF Occasional Paper No. 84, July.

Valdepeñas, Vicente B., Jr. (1998), "Globalization of Capital and Philippine Conditions," paper presented at the 7th National Convention on Statistics, Shangri-La EDSA Plaza Hotel, Manila, Philippines, 2-4 December.

Vos, Rob and Josef Yap (1996), *The Philippine Economy: East Asia's Stray Cat?*, International Finance and Development Series, Institute of Social Studies, MacMillan Press Ltd. (Great Britain) and St. Martin's Press, Inc. (USA).