Transmission mechanism of monetary policy in the Philippines

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I. Introduction

The transmission mechanism of monetary policy allows monetary policy to affect real economic activity and inflation through various channels. This mechanism likewise describes the associated lags through which monetary policy actions impact the economy. Recent surveys in the literature have identified and focused on several channels of transmission, particularly through market interest rates, the foreign exchange rate, the volume and allocation of credit, portfolio effects induced by asset price changes, and induced changes in agents' expectations.[2] These channels are interdependent and interrelated as the effects of monetary policy actions could flow through various paths and influence the level of aggregate demand and supply in the economy and ultimately output and inflation.

There are two important aspects to consider in evaluating the transmission of monetary policy. The first is the transmission from the instruments directly under the central bank's control (eg, short-term interest rates or reserve requirements) to variables that most directly affect conditions in the non-financial sector (loan rates, deposit rates, asset prices and the exchange rate). The second is the link between financial conditions and the spending decisions of both households and firms.

Financial globalization in recent years has affected the monetary transmission mechanism, either by changing the overall impact of policy or by altering the transmission channels. The liberalization of capital accounts alongside technological advances and the emergence of increasingly sophisticated financial products have posed new macroeconomic challenges for central banks in industrial and emerging market economies alike with regard to monetary policy implementation. Increased offshore borrowing and the internationalization of the local currency effectively reduces firms' exposure to domestic credit-market conditions and acts to limit the impact of monetary policy on aggregate demand. Meanwhile, the structural changes associated with the globalization process increase not only the uncertainty with respect to the monetary transmission mechanism, but also the transmission mechanism itself, which changes systematically as globalization leads to open capital markets. In light of this development, understanding the transmission mechanism of monetary policy has become one of the pressing issues for policymakers and researchers in recent years.

The liberalization of the Philippine financial system during the early 1990s paved the way for the introduction of financial instruments that had a significant impact on the conduct of monetary policy. This development resulted in the weakening of the traditional link (as posited in a monetary aggregate targeting framework) between money on the one hand and output and inflation on the other. Due to the difficulty in attaining monetary targets because of the growing instability in this relationship, the Bangko Sentral ng Pilipinas (BSP) shifted to inflation targeting as the framework for monetary policy in 2002 to put more emphasis on price stability and less weight on intermediate monetary targets.

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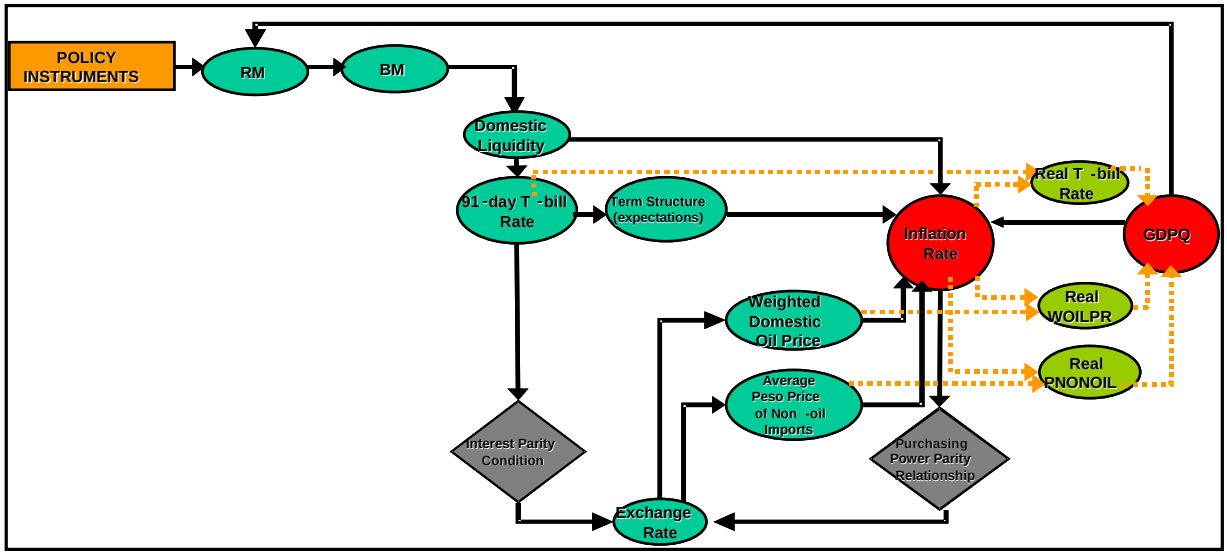
[2] See, for example, the Monetary Policy Committee, Bank of England, "The Transmission Mechanism of Monetary Policy".

One of the BSP monthly models for forecasting inflation may be useful in tracing the transmission of monetary policy from changes in the policy instruments to consequent changes in output and inflation. Changes in the BSP's policy instruments contribute to changes in inflation through the reserve money and base money which then determine the level of domestic liquidity. The level of domestic liquidity directly affects inflation. The level of domestic liquidity also affects the 91-day Treasury bill (T-bill) rate, which in turn alters the term structure of interest rates (differential between 182- and 91-day T-bill, as proxy for inflation expectations), which then impacts directly on inflation. Through the interest rate parity condition, the change in the 91-day T-bill rate also drives changes in the exchange rate. The exchange rate, in turn, affects the prices of domestic oil products (through the projected world oil price) and non-oil imports, both of which have a direct positive impact on inflation. Meanwhile, inflation has a feedback on exchange rate through the purchasing power parity (PPP) relationship. Changes in the exchange rate drive future changes in the prices of oil and non-oil imports. The model also shows the impact of real T-bill rates and real import prices. Thus, the model allows for multiple-round impacts of exchange rate movements on inflation.



Note: The dotted lines in the diagram trace the link of other endogenous variables in the model to output. The 91-day T-bill rate, weighted domestic oil price and the price of non-oil imports, each adjusted for the inflation rate, determine the real T-bill rate, real domestic oil price and real price of non-oil imports, respectively. These in turn influence the level of output. Meanwhile, the level of output has a feedback to the monetary sector through its impact on reserve money.

This paper focuses on the relative strengths of the various transmission channels in the Philippines. With the shift to inflation targeting, it was observed that the expectations channel has increasingly become a very important and in fact a more effective channel of monetary policy relative to other channels.

II. Channels of transmission

Interest rate

A central bank's interest in the transmission mechanism of monetary policy arises from the fact that it takes time for monetary policy to exert its maximum impact on inflation. A central bank should be able to carefully calibrate its policy interest rate today so as to achieve its

inflation target in the future to a level that is broadly consistent with the economy's growth objective. If the price stability objective is achieved, the central bank will then ultimately have contributed to the increase in output.

In the Philippines, the policy interest rates consist of the BSP's overnight reverse repurchase (RRP) or borrowing rate and overnight repurchase (RP) or lending rate. The policy rates are set by the Monetary Board, which is the policymaking body of the BSP. By affecting the level of liquidity, the change in the level of the BSP's policy rates influences the benchmark 91-day Treasury bill rate, banks' lending rates, deposit rates and the whole spectrum of market interest rates. In particular, the short-term market interest rates track closely the movements in the BSP's policy rates. Hence, if there is an adjustment in the BSP's policy rates, the immediate consequence of such an action would be a parallel change in the short-term rates. However, the key issue is that while short-term rates tend to follow the adjustments in the policy rates, they may not change by the same magnitude as the changes in the policy rates.

The BSP has undertaken studies to assess the impact of BSP policy rates on market interest rates. For instance, results of econometric exercises by Dakila and Claveria (2006) showed that the BSP retains its capability to influence market interest rates through the adjustment of the policy rate.[3] The study showed that apart from the past trend in the T-bill rate itself, the policy rate is the most significant determinant of the T-bill rate over the very near term (within three months). Beyond this period, exchange rate changes begin to dominate the policy rate in influencing the T-bill rate. However, the pass-through from the policy rate to the T-bill rate is quite limited.[4, 5]

The same study also examined the effect of the shift to inflation targeting on the correlation between the RRP rate and the 91-day T-bill rate. It was observed that the correlation was fairly high prior to the shift to inflation targeting and weakened thereafter. The weakening is consistent with inflation targeting as a forward-looking framework of monetary policy. Under this framework, the policy rate is set in consideration of how the inflation forecast compares with the target. The robust positive relationship prior to inflation targeting may be an indication that the policy rate may be more reactive to prevailing financial developments compared to the current framework.[6] Causality tests likewise show that the channel of impact from policy rates to T-bill rates may be indirect through secondary market rates.

Credit

The credit channel remains important for monetary transmission in the Philippines mainly because of the continued dominance of banks in the financial system.[7] Bank lending remains

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[3] In their study, an impulse response analysis of the reverse repurchase (RRP) rate and the 91-day T-bill rate from a vector autoregression (VAR) of the RRP rate, month-on-month change in the exchange rate, 91-day T-bill rate, real money supply and deviation of gross domestic product (GDP) from trend showed that a one-time shock in the RRP rate by one percentage point leads to a maximum increase in the 91-day T-bill rate of 0.70 percentage point in the second month and dissipates thereafter.

[4] Simulations in the BSP Multi-Equation Model (BSP-MEM) likewise indicate that the impact of the policy rate on the T-bill rate is minimal. In particular, sensitivity analyses derived from the model show that a one percentage point increase in the RRP rate leads to a 0.10 percentage point increase in the T-bill rate after one month and to a 0.12 percentage point rise in the bellwether over an average period of twelve months.

[5] It can be observed that T-bill rates actually deviated from policy rates roughly during the implementation of the Revised Value-Added Tax (RVAT) Law. This law, which was an important component of the fiscal reform package, contributed to the improvement of investor sentiment on the fiscal outlook and led to a general decline in T-bill rates.

[6] For the period following inflation targeting, the correlation between the policy rate and the primary and secondary T-bill rates in fact turned negative.

[7] As of December 2006, banks accounted for around 80.7 percent of the total assets of the financial system.

an important source of financing for the corporate sector as equity and corporate bond markets remain relatively underdeveloped.

However, the financial market liberalization that started in the Philippines in the early 1990s weakened the ability of bank lending to reflect the stance of monetary policy. The surge in alternatives to bank loans has somewhat diminished the link between the real economy and the bank lending channel, thereby reducing the importance of credit as a channel for monetary transmission. The opening up of financial markets resulted in the surge of financing through non-banks that offer lower funding alternatives than those provided by commercial banks. Moreover, while non-performing loans (NPLs) of banks have declined, their magnitude remains higher than the pre-1997 Asian crisis levels, leading to continued cautious lending, and a steady shift in preference of corporate firms from bank lending to internal financing. Moreover, recent policy initiatives which are intended to increase demand and trading of securities are likely to further weaken the bank credit channel. These policy changes include: (1) the introduction of unit investment trust funds (UITFs);[8] (2) establishment of the Fixed Income Exchange (FIE);[9] and (3) passage of the Securitization Act of 2004.[10]

In the banking system, more and more deposits have been freed from legal reserve requirements over the years through lower statutory and liquidity reserves, further weakening the link between monetary policy and banks' ability to lend. Recent trends in bank lending show that banks are lending more to the consumer segment of the market than to corporate borrowers. Notwithstanding this development, the increase in consumer lending has not mitigated the weakening of the credit channel as the increase in demand for credit cards has remained largely unaffected by the changes in the BSP's key policy rates.

Over the past decade, and especially after the Asian crisis, the BSP instituted policy changes aimed at ensuring the stability of the financial system. This package of financial reforms includes a staggered increase in minimum capital requirements over a three-year period until end-2000. The phased program of capital increases was aimed at further strengthening the capacity of banks to survive adverse shocks and encourage bank mergers.

In addition to the changes in the prescribed minimum levels, the BSP adopted the BIS-type, risk weight-based capital adequacy framework requiring banks to set aside capital equivalent to 10 percent of risk-weighted assets. The BSP is now in the final preparatory stages of the implementation and adoption of Basel II by 2007 that will compel banks to further strengthen their capital position.

Simultaneous with the improvement in the prudential regulatory framework, the BSP realigned its supervisory system. Improvements in supervisory techniques and approaches include: (1) the adoption of a consolidated risk-based approach to supervision and examination of banks; (2) the adoption of a ladder approach in the imposition of corrective and punitive measures on erring banks; and (3) the adoption, as a general principle, of the timely exit of problem banks.

These policy changes in the regulatory environment served to ensure that banks are operated in a safe and sound manner. These, however, could have indirectly contributed to

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[8] Unit investment trust funds (UITFs), also called common trust funds (CTFs), are open-ended pooled trust funds denominated in pesos or any acceptable currency which are operated and administered by a trust entity and made available by participation.

[9] The FIE had been established to provide an electronic platform for secondary market trading of fixed-income instruments and other debt instruments such as government securities, commercial paper and bonds issued by companies and asset-backed securities.

[10] The Securitization Act of 2004 (Republic Act no 9267) was signed into law by the President on 19 March 2004. It establishes the legal, tax and regulatory framework for asset securitization.

the cautious lending stance of banks in granting new or additional credit, thereby affecting the bank lending channel.

Exchange rate

The Philippines' exchange rate policy, which supports a freely floating exchange rate system whereby the BSP leaves the determination of the exchange rate to market forces, with some scope for occasional BSP action to dampen sharp fluctuations in the exchange rate, is considered consistent with the inflation targeting (IT) framework for monetary policy. Indeed, the credibility of the IT framework is influenced in large part by the commitment to a flexible exchange rate regime. Under its IT framework, the BSP closely monitors developments in the foreign exchange market and, when necessary, uses adjustments in policy instruments (eg, policy interest rates, reserve requirements) in cases where extreme movements in the peso threaten the inflation target. The BSP's response to exchange rate volatility is consistent with price stabilization since fluctuations in the exchange rate tend to feed directly into domestic prices of imported goods and services, and indirectly through to the prices of goods and services that use imported inputs. The increase in prices of both the imported and import-intensive goods in turn feed into demand for adjustments in wages and transport fares. Through this channel, exchange rate movements affect both actual inflation and inflation expectations.

In the Philippines, the length of time within which exchange rate changes work their way through the pattern of spending and ultimately through inflation (exchange rate pass-through) has been estimated at around a year. The impact is immediate – felt on the first month – but the maximum impact is felt about nine months after the exchange rate shock, whereupon the pass-through declines. Sensitivity analyses from the BSP's inflation forecasting models show that a ₱1.00 appreciation/depreciation results in a 0.01 percentage point decline/increase in inflation after one month and reduces/increases the average annual inflation by 0.043 percentage point. Based on the preliminary 2000 input-output (IO) table, it was estimated that a 1 percent appreciation/depreciation of the peso would reduce/increase inflation by about 0.14 percentage point. The exchange rate pass-through on inflation computed from the IO table is higher than the sensitivity derived from the inflation forecasting models since the former already incorporates the total price effect of the peso appreciation over time. On a personal consumption expenditure-weighted basis, transportation and electricity and gas prices contributed the most to the reduction in inflation (see Annex 1).

The current low level of exchange rate pass-through may be linked to cyclical conditions, notably the negative output gap (as indicated by the level of unemployment and moderate capacity utilization in manufacturing) and the manageable inflation environment, as well as to structural conditions, notably the presence of competition from low-priced imported goods and the relatively muted demand for higher wages.

The BSP addresses exchange rate pressures mainly through its headline policy rates. At times, when excess liquidity leads to speculative activities in the foreign exchange market, other monetary tools are utilized, including adjustments in both regular and liquidity reserve requirements.[11]

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[11] The BSP also at times adopts a tiering scheme on banks' aggregate placements with the BSP under the borrowing and lending and special deposit accounts (SDA) windows to discourage banks from parking their funds with the BSP. In times of market pressure, the BSP may suspend the tiering scheme to siphon off excess liquidity from the financial system that may find its way into speculative activities in the foreign exchange market.

Asset prices

It is widely accepted that under an inflation targeting framework, monetary policy should focus on the movements of prices of goods and services, not on asset prices. Under this framework, monetary policy could react to a rapid rise in asset prices only in so far as they affect inflation and inflationary expectations through the wealth effect. However, it is important for the monetary authorities to be concerned with asset price bubbles since they influence investment and consumption behavior and function as leading indicators of economic activity that contain useful information about future movements of inflation and output.

In the Philippines, marked fluctuations in asset prices were observed in the years leading up to and following the Asian crisis. The early to mid-1990s were characterized by a general rise in asset prices, followed by a rapid collapse during the Asian crisis. The Philippine experience indicates that a combination of surging capital inflows, rapid credit growth, and accommodative monetary policy can lead to a rise in asset prices:

- The liberalization of nearly all capital account and foreign exchange transactions in 1992 resulted in an influx of foreign capital. Greater openness, as well as the peso's stability and low US interest rates, encouraged foreign borrowing by financial institutions.
- Capital inflows, as well as increasingly market-determined interest rates and credit policies, boosted lending, particularly to the real estate sector.
- Lending and credit conditions were also helped by a generally accommodative monetary policy stance in the mid-1990s.
- Property and stock prices surged with massive capital inflows and rapid credit growth, and fell sharply as the Asian financial crisis broke out.

The fluctuations in asset prices influenced real aggregates, such as household consumption and investments as well as inflation, which broadly moved in tandem with asset price changes. In the post-Asian crisis period, however, private consumption has continued to grow strongly despite the decline in equity and real estate prices. This may be due to the observation that overseas worker remittances are also behind consumption smoothing.

In the Philippines, the asset price channel is closely linked to the bank lending channel, since the financial system remains dominated by banks. The collapse of asset prices during the Asian financial crisis contributed to the rise in non-performing loans (NPLs) and real and other properties acquired (ROPAs) of banks in subsequent years. The deterioration in asset quality of banks, among other factors, dampened credit activity. At present, banks generally have limited direct exposure to real estate and stocks. Commercial bank loans to the real estate sector are below the cap of 20 percent of total loans (11.8 percent as of September 2006). Trading account securities in shares of stock and equity investments in allied/non-allied undertakings are about 2.7 percent of total assets of commercial banks as of June 2006.

The Philippine experience in the 1990s, during which the rapid growth in asset prices was accompanied by accommodative monetary policy, suggests that asset price fluctuations can affect monetary transmission through the credit channel, to the extent that they affect bank asset quality and lending behavior. This is particularly true in the case of property assets. Monetary authorities should therefore pay attention to movements in asset prices, particularly during periods of accommodative monetary policy.

A test of the existence of an asset price channel in the Philippines indicates that asset prices can predict price movements a full year or a full two years ahead (see Tables 1 and 2). Notwithstanding that they are an actual component of the consumer price index (CPI), rentals (proxying for housing prices) can independently be significant as a predictor of future

price movements, since in the current economic situation it is primarily through rentals that property owners can monetize the equity in their homes and other real properties.

Equity and bond prices tend to have a limited impact on household wealth and consumption since the retail segment of domestic and equity and bond markets remains relatively underdeveloped and household ownership of equity shares and bonds is far from widespread. Household accumulation of financial assets is instead likely to be concentrated more in savings deposits and insurance.

The BSP's response during the Asian crisis was to increase policy interest rates to mitigate the deterioration in the economic environment rather than address the need to control artificially high asset prices. Recognizing the adverse effects of abnormally high asset prices on the real sector and the banking system, monetary authorities as early as 1995 included the monitoring of asset price changes in the monetary policy framework. The BSP also adopted prudential measures to cap banks' lending to the real estate sector.

It should be noted that BSP concern on asset prices becomes more critical in the face of supply shocks. If the BSP were to counteract supply pressures on output by reducing interest rates, asset price inflation could be abetted in the process.

Table 1

Dependent Variable: INFLATION (4)
Method: Least Squares
Sample (adjusted): 1993:1 2005:4
Included observations: 52 after adjusting endpoints
Convergence achieved after 55 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.520513	1.912129	3.933057	0.0003
MA1_INFLATION	–1.266250	0.288627	–4.387152	0.0001
MA2_GDP_GR	0.479032	0.239252	2.002207	0.0519
MA1_M3_GR	–0.162029	0.068849	–2.353394	0.0235
MA2_M3_GR	–0.137793	0.072834	–1.891863	0.0656
MA1_ER_GR	–0.100497	0.039970	–2.514301	0.0159
MA2_ER_GR	–0.076971	0.039094	–1.968849	0.0558
MA1_RENTALS_GR	1.324633	0.253801	5.219186	0.0000
MA1_PHISIX_GR	0.043184	0.020741	2.082042	0.0436
MA2_PHISIX_GR	0.044013	0.016878	2.607653	0.0127
AR(1)	0.893429	0.052253	17.09813	0.0000

R-squared	0.889543	Mean dependent var.	6.358284
Adjusted R-squared	0.862602	S.D. dependent var.	2.326756
S.E. of regression	0.862463	Akaike info criterion	2.727357
Sum squared resid.	30.49757	Schwarz criterion	3.140120
Log likelihood	–59.91129	F-statistic	33.01849
Durbin-Watson stat.	1.570991	Prob (F-statistic)	0.000000

Inverted AR Roots	.89

Table 2

Dependent Variable: INFLATION (8)
Method: Least Squares
Sample (adjusted): 1992:1 2004:4
Included observations: 52 after adjusting endpoints
Convergence achieved after 20 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.712071	1.388144	1.233353	0.2243
MA1_INFLATION	0.466908	0.250600	1.863158	0.0694
MA2_M3_GR	0.281476	0.059454	4.734332	0.0000
MA1_TBILL91	–1.212012	0.256904	–4.717757	0.0000
MA2_TBILL91	0.576176	0.169799	3.393284	0.0015
MA1_ER_GR	0.164503	0.043323	3.797135	0.0005
MA2_ER_GR	–0.040703	0.026783	–1.519744	0.1361
MA1_PHISIX_GR	0.060211	0.015914	3.783439	0.0005
MA2_TERM_STRUCTURE	2.517530	0.867789	2.901084	0.0059
AR(1)	0.522730	0.135192	3.866584	0.0004

R-squared	0.854165	Mean dependent var.	6.358284
Adjusted R-squared	0.822915	S.D. dependent var.	2.326756
S.E. of regression	0.979133	Akaike info criterion	2.966742
Sum squared resid.	40.26544	Schwarz criterion	3.341981
Log likelihood	–67.13530	F-statistic	27.33304
Durbin-Watson stat.	1.433439	Prob (F-statistic)	0.000000

Inverted AR Roots	.52

Definition of variables:

Inflation (n)	= quarterly CPI inflation at n quarter leads
GDP_GR	= GDP growth
M3_GR	= M3 growth
ER_GR	= year-on-year change in the exchange rate
RENTALS_GR	= year-on-year change of rentals component of the CPI
PHISIX_GR	= year-on-year change of Phisix
TBILL91	= 91-day T-bill rate
TERM_STRUCTURE	= 182-day T-bill rate minus 91-day T-bill rate
MAn_X	= denotes the moving average of the variable X over the n-year period

Expectations

Meanwhile, the enhanced transparency associated with the shift to inflation targeting has served to increase policymakers' awareness of the importance of the expectations channel in the conduct of monetary policy. Greater attention has been paid as a result to gauging public inflation expectations.

An empirical test of the expectations channel, given sparse data, may be done by testing whether the expectations hypothesis of the term structure of interest rates holds for the Philippines. By definition, the expectations hypothesis of the term structure of interest rates states that the returns for a lender facing uncertainty over the long-term horizon can be computed by considering the expected returns of shorter-term periods covered by the long

horizon and constructing a weighted average plus a term premium to compensate him for assuming the greater risk extended by longer-term lending. Empirically testing the expectations hypothesis therefore involves regressing the long-term interest rate on the average of the short-term interest rates of the consecutive time to maturities it covers and on the term premium. The hypothesis is said to hold if the coefficient of the average short-term rate is equal to one and if the term premium can be shown to be constant (ie, not time-varying). The role of the expectations hypothesis is crucial in the sense that it provides the link between market rates of interest-bearing financial instruments on which economic activity depends and the policy rate. It does this by extending the effect of the policy rate on short-term interest rates to the longer-term interest rates on which a lot of business and household decisions are based.

Regressing the 182-day T-bill rate on the average of the two 91-day Treasury bill rates, covering its time to maturity and relegating the term premium to the residual term, it is observed that the assumption that the term premium is constant does not hold, but the premise that the coefficient of the regressor is equal to one does hold. Our initial examination of the result shows that the existence of the expectations channel is qualified (see Table 3).

Table 3

Dependent Variable: TBILL182
Method: Least Squares
Sample (adjusted): 1988:4 2006:2
Included observations: 71 after adjusting endpoints
Convergence achieved after 90 iterations
Backcast: 1988:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.044198	0.612645	1.704411	0.0929
(TBILL91+TBILL91(2))/2	1.009628	0.046003	21.94702	0.0000
AR(3)	0.012578	0.127499	0.098648	0.9217
MA(1)	0.887787	0.060110	14.76930	0.0000

R-squared	0.958884	Mean dependent var.	13.28451
Adjusted R-squared	0.957043	S.D. dependent var.	5.568910
S.E. of regression	1.154211	Akaike info criterion	3.179399
Sum squared resid.	89.25757	Schwarz criterion	3.306874
Log likelihood	–108.8687	F-statistic	520.8506
Durbin-Watson stat.	1.847261	Prob (F-statistic)	0.000000

Inverted AR Roots	.23	–.12–.20i	–.12+.20i
Inverted MA Roots	–.89		

In the past few years, monetary authorities' assessment of the required magnitude of policy rate changes has been shaped in large part by continuing evidence of minimal demand-pull inflationary pressures, given moderate resource utilization in the economy. Nevertheless, with the escalation of cost-push pressures associated with the recent oil price shock, authorities have considered, during various discussions on the monetary policy stance, responding with marginal changes in the policy interest rates as a means of influencing/managing inflation expectations and signaling the BSP's commitment to its inflation objective.

The communication strategy and credibility of the BSP are also important factors that influence the formation of inflation expectations. In particular, a full dose of monetary policy action may not be necessary if the public is convinced that the BSP will act in accordance with its policy pronouncements.

III. Concluding remarks

The Philippine experience shows that increased financial globalization and the liberalization of the Philippine financial markets have affected the various transmission channels of monetary policy. These changes have undermined the traditional relationships between monetary aggregates and goal variables (inflation and output) which rendered monetary policymaking a more challenging task. Because of these developments, the BSP decided to shift to inflation targeting as the framework for monetary policy to address the need for a more forward-looking approach in the conduct of monetary policy.

With the shift to inflation targeting, it was observed that the expectations channel has taken a more important role in the transmission of monetary policy in the Philippines. The enhanced transparency associated with inflation targeting has increased policymakers' awareness of the importance of gauging public inflation expectations in the conduct of monetary policy. While the expectations channel has strengthened during the inflation targeting period, the effect of inflation targeting on the interest rate channel, specifically the correlation between the policy rate and the benchmark 91-day T-bill rate, has weakened. This evidence is consistent with inflation targeting as a forward-looking framework of monetary policy. The robust positive relationship prior to inflation targeting may be an indication that the policy rate then may be more reactive to prevailing financial developments compared to what is done under the current framework.

In the Philippines, the credit availability channel and the asset price channel remain closely linked due to the dominant role of the banking system in the Philippine financial system. Financial market liberalization, coupled with the large NPL overhang, which is a remnant of the Asian financial crisis, has weakened the credit availability channel and, to a certain extent, the asset price channel of monetary policy. Meanwhile, the BSP's flexible exchange rate policy has helped to limit the exchange rate pass-through from nominal exchange rates to inflation. Together with the firm commitment to maintain the inflation target, exchange rate changes are likely to be viewed by firms as temporary, and this has worked to weaken the exchange rate channel of monetary policy transmission. In the Philippine case, the low level of exchange rate pass-through may be linked to cyclical and structural conditions, notably the manageable inflation environment and the presence of competition from low-priced imported goods and the relatively benign labor market condition.

Annex 1

Impact of 1% peso appreciation on Consumer Price Inflation

Based on preliminary 2000 input-output table

	Impact on inflation;[1] in percentage points	PCE weight[2]	Impact on inflation (weighted); in percentage point
01 Paddy	-0.0424	0.0000	0.0000
02 Other grains	-0.0508	0.0008	0.0000
03 Other food crops	-0.0971	0.0214	-0.0021
04 Non-food crops	-0.1308	0.0006	-0.0001
05 Livestock and poultry	-0.1084	0.0205	-0.0022
06 Forestry	-0.1133	0.0000	0.0000
07 Fishery	-0.1040	0.0400	-0.0042
08 Crude petroleum and natural gas	-0.0906	0.0000	0.0000
09 Iron Ore	0.0000	0.0000	0.0000
10 Other metallic Ore	-0.0965	0.0000	0.0000
11 Non-metallic ore and quarrying	-0.1831	0.0003	-0.0001
12 Milled grain and flour	-0.0620	0.1164	-0.0072
13 Fish products	-0.0842	0.0171	-0.0014
14 Slaughtering and meat products	-0.1239	0.0767	-0.0095
15 Other food products	-0.1337	0.1474	-0.0197
16 Beverage	-0.1445	0.0285	-0.0041
17 Tobacco	-0.1346	0.0128	-0.0017
18 Spinning	-0.4426	0.0002	-0.0001
19 Weaving and dyeing	-0.4859	0.0002	-0.0001
20 Knitting	-0.5462	0.0003	-0.0002
21 Wearing apparel	-0.3908	0.0066	-0.0026
22 Other made-up textile products	-0.4498	0.0011	-0.0005
23 Leather and leather products	-0.3218	0.0001	0.0000
24 Timber	-0.1469	0.0001	0.0000
25 Wooden furniture	-0.2579	0.0039	-0.0010
26 Other wooden products	-0.3010	0.0006	-0.0002
27 Pulp and paper	-0.4123	0.0005	-0.0002
28 Printing and publishing	-0.3315	0.0021	-0.0007
29 Synthetic resins and fiber	-0.3382	0.0000	0.0000
30 Basic industrial chemicals	-0.4718	0.0000	0.0000
31 Chemical fertilizers and pesticidies	-0.3976	0.0003	-0.0001
32 Drugs and medicine	-0.4253	0.0041	-0.0017
33 Chemical final products	-0.4049	0.0125	-0.0051
34 Refined petroleum and its products	-0.5776	0.0160	-0.0093
35 Plastic products	-0.5149	0.0004	-0.0002
36 Tires and tubes	-0.5554	0.0001	-0.0001
37 Other rubber products	-0.4781	0.0014	-0.0007
38 Cement and cement products	-0.3552	0.0003	-0.0001
39 Glass and glass products	-0.3718	0.0000	0.0000
40 Other non-metallic mineral products	-0.3141	0.0004	-0.0001
41 Iron and steel	-0.5120	0.0000	0.0000

For footnotes, see the end of the table.

Impact of 1% peso appreciation on Consumer Price Inflation (cont)

Based on preliminary 2000 input-output table

		Impact on inflation;[1] in percentage points	PCE weight[2]	Impact on inflation (weighted); in percentage point
42	Non-ferrous metal	-0.3782	0.0000	0.0000
43	Metal products	-0.4913	0.0002	-0.0001
44	Boilers, engines and turbines	-0.4017	0.0000	0.0000
45	General machinery	-0.4304	0.0000	0.0000
46	Metal working machinery	-0.3674	0.0000	0.0000
47	Specialized machinery	-0.4364	0.0000	0.0000
48	Heavy electrical equipment	-0.5056	0.0000	0.0000
49	Television sets, radios, audios & comm eqpt	-0.6004	0.0006	-0.0004
50	Electronic computing equipment	-0.6597	0.0001	0.0000
51	Semiconductors and integrated	-0.6533	0.0000	0.0000
52	Other electronics & electronics products	-0.6051	0.0000	0.0000
53	Household electrical equipment	-0.4650	0.0021	-0.0010
54	Lighting fixtures, batteries, wiring & others	-0.4602	0.0003	-0.0001
55	Motor vehicles	-0.4333	0.0018	-0.0008
56	Motorcycles	-0.4700	0.0001	-0.0001
57	Shipbuilding	-0.3108	0.0000	0.0000
58	Other transport equipment	-0.4436	0.0000	0.0000
59	Precision machines	-0.4392	0.0004	-0.0002
60	Other manufacturing products	-0.3631	0.0014	-0.0005
61	**Electricity and gas**	**-0.3571**	**0.0318**	**-0.0114**
62	Water supply	-0.2649	0.0036	-0.0009
63	Building construction	-0.2011	0.0000	0.0000
64	Other construction	-0.2072	0.0020	-0.0004
65	Wholesale and retail trade	-0.0685	0.0861	-0.0059
66	**Transportation**	**-0.2810**	**0.0493**	**-0.0138**
67	Post and telecommunication	-0.0596	0.0136	-0.0008
68	Finance and insurance	-0.0573	0.0172	-0.0010
69	Real estate & ownership of dwellings	-0.0380	0.1221	-0.0046
70	Education and research	-0.0699	0.0516	-0.0036
71	Medical and health service	-0.2641	0.0358	-0.0095
72	Restaurants	-0.1521	0.0349	-0.0053
73	Hotel	-0.1413	0.0021	-0.0003
74	Other services	-0.1030	0.0090	-0.0009
75	Public administration	-0.0614	0.0000	0.0000
	TOTAL		**1.0000**	**-0.1370**

[1] Impact of 1% peso appreciation on the commodity's price inflation, in percentage points; e.g., 1% appreciation lowers the price of hotel services by 0.14 percentage point. [2] Weight of the commodity in Personal Consumption Expenditures (I-O 2000, Final Demand); in decimal points.

References

Dakila, Jr, F (2002): “Exchange Rate Pass-Through to Inflation”, BSP Inflation Report, Third Quarter 2002

Dakila, Jr, F and R Claveria (2006): “Transmission mechanism of monetary policy”, BSP Inflation Report, First Quarter 2006

——— (2006): “The impact of BSP policy interest rates on market interest rates”, *Bangko Sentral Review*, vol III, no 1, January 2006

Dakila, Jr, F and M D Paraso (2004): “Monetary transmission mechanism in the Philippines: The interest rate channel”, *Bangko Sentral Review*, vol VI, no 1, January 2004

Kozicki, S and P A Tinsley (2005): “What do you expect? Imperfect policy credibility and tests of the expectations hypothesis,” *Journal of Monetary Economics*

Lamberte, M (2003): “Central Banking in the Philippines: Then, Now and the Future”, Philippine Institute for Development Studies

Vital, O and L Laquindanum (2004): “Asset price bubbles: implications on, and approaches to, monetary policy and financial stability”, *Bangko Sentral Review*, vol VI, no 2, July 2004