A Note on the Use of the BSP Overnight Policy Rate
as the Major Instrument of Monetary Policy
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Background

The very liquid global economic environment has prompted the increased use of reserve requirements (RRs) among emerging economy central banks, primarily as a less costly means of absorbing liquidity associated with increased reserve accumulation. By directly limiting the amount of funds available for credit, and by minimizing costs incurred due to sterilization, raising the RR ratio can cheaply lock up excess liquidity and effectively curtail overly rapid credit growth and budding asset price bubbles, especially if it also prompts banks to raise their lending rates. Alternatively, increases in policy rates may also be utilized but may fail to constrain bank lending in the short run when the pass-through from the policy rate to market rates is weak.

Since January 2010, central banks in five emerging Asian economies have raised their reserve requirements in response to strong domestic liquidity and credit growth. China has made the most frequent adjustments, having raised the RR eleven times between January 2010 and June 2011. India and Indonesia adjusted their RR ratios in 2010, while Malaysia and the Philippines raised their RR ratios in the first half of 2011.[2]

This note argues that policy interest rates should continue to serve as the main instrument for signaling the monetary policy stance.

Review of Literature

Over the course of the past 30 years, most central banks have shifted to the use of policy interest rates as their main instrument for monetary policy given their clarity in signaling the stance of monetary policy.[3] Their use as the main policy instrument coincided with the shift away from monetary aggregate targeting among central banks to other monetary policy frameworks involving control over short-term interest rates.

By the 1990s, advanced economy central banks have relegated RRs to the status of secondary policy instruments.[4] With notable exceptions (e.g., China), Asian central banks have also pared down their use of RRs.[5] The diminished role of RRs has been attributed to the recognition that they serve as a tax on depository institutions and to their reduced effectiveness due to financial innovation.[6]

For the BSP, the transition coincided with the reorganization of the old central bank, and this was reinforced further by the adoption of the inflation targeting framework beginning in 2002.

The use of policy rates by central banks reflects reliance on indirect means of monetary control consistent with increased financial development. Indirect monetary policy instruments[7] promote the role of market forces in mobilizing and allocating financial resources. Open-market type operations, with the policy rate as the price signal, make

possible the redistribution of liquidity among participants/counterparties through the market mechanism, allowing the central bank to manage liquidity broadly as opposed to managing the liquidity positions of individual financial institutions.[8] Given sound macroeconomic fundamentals and a well-functioning financial market, central bank policy interest rates serve as unambiguous price signals that guide the behavior of financial institutions with minimal direct government intervention.

Financial innovation has also reduced the effectiveness of RRs as a monetary policy tool. Direct monetary controls tend to become less effective in a reasonably developed financial system because market players eventually find ways around them, especially in an open economy.[9] In particular, because RRs act as a tax on bank intermediation, they create incentives for banks to fashion products aimed at delivering transaction services without creating reservable liabilities. For example, in the United States (US), banks have developed sweep accounts where funds are transferred from deposit accounts to money market accounts that are not covered by RRs or interest remuneration.[10,11] The use of sweep accounts by banks has had the effect of making monetary aggregates difficult to forecast and may have contributed to the breakdown of money demand functions.[12] It is expected that similar incentives for banks exist in other jurisdictions. The practices of RR avoidance vary, although they are usually variants of off-balance sheet transactions or the accumulation of non-reservable deposits in other institutions.[13]

In the Philippines, banks have made use in the past of informal or undocumented "repo-like" transactions as a way to circumvent high RRs. Under these so-called undocumented "repo" transactions, banks sell government securities (GS) to the non-bank public,

accompanied by an agreement to repurchase the same securities at an agreed future date. Such transactions essentially allowed banks to offer to the public deposit substitutes which, in principle, should be subject to RRs. However, these transactions were neither disclosed nor reported to supervisory authorities, allowing banks to increase their liquidity holdings without having to comply with RRs. Hence, these informal transactions have had the effect of making monetary aggregates (i.e., M3) difficult to measure.[14]

Moreover, RRs were imposed on deposit substitute liabilities and on certain off-balance sheet transactions (e.g., common trust funds (CTFs), as well as other trust and other fiduciary accounts) based on the observation that these were previously being used as a means to avoid RRs on deposits.[15]

Arguments for Using Policy Rates

Under normal times, most inflation targeting (IT) central banks signal their policy stance with their key policy rates because they can be easily fine-tuned to achieve the desired policy stance. IT central banks tend to use a short-term (typically overnight) interest rate as their operating target, with open market operations (OMOs) as the prevalent monetary policy instrument to maintain the operating target at the desired level. The relative ease with which OMOs are conducted provides central banks with flexibility, precision, and clarity in signaling changes in the policy outlook. The shift towards the use of indirect monetary policy instruments reflects a common trend where central banks over time veer away from direct control of aggregates such as bank reserves or the monetary base.[16] Likewise, this shift also implies that modern central banks have chosen to accommodate fluctuations in the demand for bank reserves, a flexibility not found when using hard monetary base targets.

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[8] Laurens, et al. (2005).
[9] Axilrod (1996)
[10] Anderson and Rasche (2001)
[11] Sweep accounts are typically used in asset management, because they offer convertibility of excess balances into a higher-yielding savings or investment instrument, such as a money market mutual fund or overnight repurchase agreement. See Hatch (2005).
[12] Dutkowsky and Cynamon (2003).
[13] In the US, for instance, off-balance sheet activities by the US Federal Reserve during the recent financial crisis could have rendered the RR ineffective in draining liquidity and in stemming financial imbalances.

[14] Based on a BSP study on the reduction of reserve requirements in the context of Philippine capital market development.
[15] However, CTFs that are qualified to shift to unit investment trust funds (UITFs) are exempt from reserve and liquidity requirements per BSP Circular No. 447 dated 03 September 2004.
[16] Axilrod (1996).

In an environment of continued accommodative monetary stance in advanced economies, RRs can be used to drain excess liquidity due to capital flow surges, complementing policy rate changes. Adjustments in the RR ratio tend to involve much larger changes in the money supply compared with short-term interest rates, making the RR ratio ideal for draining liquidity quickly and less costly. Direct means of monetary control are also more suited to less developed financial systems where rules-based instruments are needed to establish policy credibility and stability.

However, because RRs act like a tax on banks, changes in the RR influence the incentives of banks in a manner that may misalign banks' responses from the policy intentions of the central bank. For example, an increase in the RR ratio could be ineffective in draining excess liquidity if banks already hold more than sufficient reserves in compliance. Changes in the RR ratio can thus send mixed signals to the financial system, creating uncertainty that can make liquidity management more difficult.

RRs may also put banks at a competitive disadvantage with other financial institutions (i.e., non-banks) by raising the cost of funds. With higher intermediation costs, banks may see the need to raise interest rates on loans or reduce interest payments on deposits,[17] pushing financial intermediation activity outside the banking system and thus weakening the central bank's monetary control. Furthermore, the direct effect of a high reserve ratio may fall on those sectors that rely heavily on bank financing, especially small- and medium-scale enterprises (SMEs), and may consequently depress economic activity.

Policy rates allow finer monetary control and more gradual adjustments in monetary conditions. Adjustments in the settings of direct instruments of monetary policy cannot be employed frequently, especially when gradual and measured responses to economic shocks are warranted and without

causing permanent distortions to lending and investment behavior of banks.

In contrast, indirect policy instruments such as the policy rate can be calibrated and employed as needed, and with minimal administrative cost and delay, in response to inflationary shocks. The policy rate works within the BSP's initiative and control through OMOs, which allow greater flexibility in terms of the amount and timing of intervention.

Although the issue of policy stability applies equally to all instruments in the BSP's toolkit, the preference for indirect tools such as OMOs over direct measures such as the RR underscores the need to send clear policy signals to the market while minimizing distortions caused by policy interventions.

Policy rates work through other channels besides the credit channel. Policy rate decisions affect output and inflation through the monetary transmission process that conventionally operates through five channels: interest rates, exchange rates, credit, asset prices, and expectations. These channels are not mutually exclusive, as the effect of one could amplify or moderate the effect of another. These channels are also not invariant over time, evolving alongside changes in the overall economic and financial conditions.

The traditional channel of monetary policy is the interest rate channel, which is associated with changes in the real money supply. For example, a rise in the nominal policy interest rate increases the real interest rate, potentially affecting the consumption and investment decisions of economic agents leading to a reduction in aggregate demand. Empirical studies, however, have found that the macroeconomic impact of a policy-induced rise in interest rates is much larger than the implied interest elasticities of consumption and investment, suggesting that there are other broader mechanisms at work.[18]

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[17] Reinhart and Reinhart (1999) find empirical evidence suggesting that an increase in reserve requirements tends to raise lending rates and to reduce deposit rates.

[18] Bernanke and Gertler (1995).

Figure 1. Monetary Policy Transmission Channels

* Aggregate demand consists of consumption, investment and net external demand. Consumption and investment include those of both the private and the public sectors.

Likewise, policy actions of credible central banks can help influence private agents' behavior through the expectations channel. A policy rate hike when the risks to inflation outlook is tilted toward the upside can help anchor inflation expectations as it signals that the central bank remains committed to safeguarding price stability. Bayangos, et al. (2010) examined the expectations channel in the Philippines and noted that the BSP's policy rate decision (denoted by the real reverse repurchase (RRP) rate) is a significant determinant of expected future inflation, as past increases (one month ago) in policy interest rates tend to lower inflation expectations.

More importantly, policy rates retain their effectiveness as a monetary tool in the current macroeconomic environment. Despite the surge in capital inflows, the policy rate remains effective in influencing market rates through the interest rate channel.

Capital flows appeared to have diminished the impact of monetary policy on market rates, as evidenced by the divergence between the BSP policy rate and T-bill rates in the primary market. Likewise, the BSP's policy rate has remained consistently higher compared to secondary market yields of short-term government debt instruments. Along with ample liquidity in the financial system given the surge in capital flows, the divergence between the policy rate and T-bill rates can also be attributed to the pattern of rejection of T-bill bids by the Bureau of the Treasury (BTr). In 2011, awards were below programmed in 13 out of 24 auctions held between January and November, as authorities deemed the bid rates too high.

Nonetheless, the policy rate remains effective in influencing both the 3-month and 25-year rates. Using ordinary least squares regression with quarterly data from January 2001 to December 2010, it was found that when the impact of capital inflows were taken into account, the interest rate pass-through coefficient fell from 1.045 to 0.879 for short-term interest rates, while it eased from -0.829 to -0.544 for long-term Treasury bond rates.[19]

Overall, a tightening of monetary policy can cause an increase in short-term interest rates, but expectations of lower inflation can cause a decline in long-term Treasury bond rates.

It should be acknowledged that the environment of surging capital inflows combined with interest rate differentials favoring emerging markets (EMs) places a constraint on the policy rate actions of EM central banks, including the BSP. The policy dilemma faced by these monetary authorities is embodied in the impossible trinity trilemma.[20] For instance, a central bank cannot raise policy rates to contain potential inflation pressures without further attracting capital inflows which could further contribute to appreciation pressures. Meanwhile, the need to mitigate appreciation pressures leads central banks to accumulate more foreign reserves which have to be sterilized to prevent undue increases in domestic liquidity.

The BSP has thus far resisted the use of capital controls but instead uses a menu of instruments to deal with the surge in capital flows. Using a menu of policy tools helps address the policy dilemma that would have been posed if interest rate action was the only tool to stem the inflow of capital. The policy toolkit, among others, includes reserve accumulation, macroprudential measures, liberalization of foreign exchange regulations, exchange rate flexibility, and calibration of monetary policies.

Specifically, the BSP has complemented policy rate hikes with RR increases to mitigate

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[19] See the boxed article, "How Effective is Philippine Monetary Policy in the Face of Large Capital Flows?" in the *2011 BSP Annual Report (Volume 1).*
[20] This suggests that a country cannot have an autonomous monetary policy, perfect capital mobility, and a fixed exchange rate all at the same time.

the impact of rising inflationary pressures and rapid capital inflows throughout 2011. In order to rein in inflation expectations amid rising food and oil prices, the BSP gradually raised its policy rates by a total of 50 basis points in the first semester of the year. As inflation expectations started to level off, the BSP raised the RR ratio (by 200 basis points) as a preemptive move against additional inflationary pressures from excess liquidity. Increasing the RR ratio would also help improve the transmission of monetary policy amid excess liquidity in the financial system, underscoring the role of RRs as a complementary fine-tuning instrument.

On an empirical level, simulations suggest that the overnight RRP rate remains an effective instrument of monetary policy for the BSP.

We compare the impact of a sustained one percentage point increase in the overnight RRP rate and banks' statutory RRs on M3 (domestic liquidity) growth, the nominal peso-dollar rate, real GDP growth and inflation using the BSP Multi-Equation Model (MEM) and the Dynamic Stochastic General Equilibrium (DSGE) model. The shock to the overnight RRP rate and banks' RRs is sustained over four quarters.

In the DSGE model, the increase in the BSP policy rate feeds into inflation and growth in the following manner: An increase in the overnight policy rate induces a nominal exchange rate appreciation which causes the inflation rate to go down. The combination of the decline in inflation and the nominal exchange rate appreciation leads to a real exchange rate appreciation, raising the growth of imports and investments. Higher imports growth and investments then lead to increased output growth.[21]

In the case of the RRs, the channel of transmission differs between the MEM and DSGE models. In the MEM, which is estimated using ordinary least squares, the RR enters the money multiplier equation directly, which will in turn affect M3. In the DSGE model, the central bank sets the policy

rate[22] and is obliged to provide liquidity to the banking system. When the central bank raises the reserve requirements, credit to the private sector declines, leading to a drop in M3 growth. The decline in M3 growth leads to a drop in inflation rate. Meanwhile, the decline in credit to the private sector reduces growth in investments and in imports. The decline in investments eventually leads to a decline in output growth.

Using both models, the simulation results show that adjustments in the BSP RRP rate have a larger impact on inflation and growth, particularly in the first year. A one-percentage point increase in the overnight RRP rate is estimated to help bring down inflation by an average of 0.011 percentage point (MEM) to 0.520 percentage point (DSGE model). Meanwhile, the one-percentage point increase in banks' RR is estimated to help bring down inflation by an average of 0.021 percentage point (DSGE) to 0.060 percentage point (MEM). These results may suggest that the overnight RRP rate remains a more effective instrument of monetary policy for the BSP than the RR.

Table 1. Preliminary Simulation Results Using the BSP-MEM and DSGE Models

Economic Indicators (Change relative to baseline)	MEM 1st year average	DSGE 1st year average
Using overnight RRP rate (one percentage point increase)		
M3 growth (in ppt)	-0.430	-0.004
Nominal peso-dollar rate depreciation (+)/appreciation(-)	-0.027	-0.006
Real GDP growth (in ppt) [1/]	-0.017	-0.130
Inflation (in ppt) [2/]	-0.011	-0.520
Using reserve requirements (one percentage point increase)		
M3 growth (in ppt)	-2.967	-0.068
Nominal peso-dollar rate depreciation (+)/appreciation(-)	-0.019	-0.001
Real GDP growth (in ppt) [1/]	-0.011	-0.002
Inflation (in ppt) [2/]	-0.060	-0.021

[1/] Based on the 1985-based National Income Accounts
[2/] MEM is based on the 2006 base year while DSGE is based on 2000 base year. Preliminary analysis indicates that there appears to be no upward bias in the new 2006-based CPI series relative to the 2000-based series.

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[21] The policy rate is determined endogenously in the DSGE model. In contrast, the policy rate is an exogenous variable in the MEM.

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[22] Policy rate is a function of steady state policy rate, lagged policy rate, inflation gap, output gap with some stochastic shock to capture uncertainty in monetary policy setting. Government bond yield is a function of own steady state value, own lag, deviation of lagged policy rate from steady state policy rate and inflation rate with some stochastic shock. Consistent with the policy rate adjustment, the CB has to provide liquidity support to the banking system.

Policy Implications

Policy rates should remain the primary lever for adjusting the monetary policy stance under normal times. The policy rate grants the BSP sufficient flexibility and precision in sending clear and timely signals about its policy stance to help anchor inflation expectations and provide policy directions. More importantly, the policy rate remains effective even amid the current environment of strong capital inflows. In contrast, RRs are a relatively blunt instrument in managing short-term liquidity because even small adjustments can have a disproportionate impact on the money supply.

Nonetheless, RRs can be used as a complement to policy rates to siphon excess liquidity due to capital flow surges in an environment of continued accommodative monetary stance in advanced economies. The use of RR can complement indirect policy instruments when large adjustments in liquidity conditions are necessary, particularly when it is costly for central banks to rely solely on OMOs. However, it must be emphasized that an increased reliance on RR as a policy tool can give rise to distortions that could raise the cost of funds and cause financial disintermediation.

References

Anderson, R. and R. Rasche. 2001. "Retail SWEEP programs and bank reserves: 1994-1999". *Federal Reserve Bank of St. Louis Review*, vol 83, no. 1: 51-72.

Aschheim, J. 1959. "Open-market operations versus reserve-requirement variation". *The Economic Journal*, vol 69, no. 276 (December): 697-704.

Axilrod, S. 1996. "Transformations to open market operations". IMF. *Economic Issues No. 5.*

Bayangos, V., et al. 2010. "Quantifying the inflation expectations channel in the Philippines: Some preliminary results". BSP Working Paper Series No. 2010-02.

Bernanke, B., and M. Gertler. 1995. "Inside the black box: The credit channel of monetary policy Transmission". *Journal of Economic Perspectives* vol 9: 27-48.

Borio, C. 1997. "The implementation of monetary policy in industrial countries: A survey". Bank for International Settlements. Economic Paper No. 47, July.

Dutkowsky, D. and B. Cynamon. 2003. "SWEEP programs: The fall of M1 and the rebirth of medium of exchange". *Journal of Money, Credit and Banking*, vol 35, no. 2: 263-279.

Friedman, B. and K. Kuttner. 2010. "Implementation of monetary policy: How do central banks set interest rates?" in Friedman and Woodford (eds.) Handbook of Monetary Economics, Volume 3B: 1345 – 1438.

Hatch, C. 2005. "Inflationary deception: How banks are evading reserve requirements and inflating the money supply". *Mises Institute Working Papers.* http://mises.org/journals/scholar/hatch.pdf

Herrera, H., et al. 2010. "Effects of reserve requirements in an inflation targeting regime: The case of Colombia". Bank for International Settlements Papers no. 54

Ho, C. 2008. "Implementing monetary policy in the 2000s: Operating procedures in Asia and beyond". Bank for International Settlements. Working Paper No. 253, June.

Laurens, B., et al. 2005. "Monetary policy implementation at different stages of market Development". IMF. Occasional Paper No. 244.

Montoro, C. and R. Moreno. 2011. "The use of reserve requirements as a policy instrument in Latin America". *BIS Quarterly Review*, March.

Nautz, D. and J. Scheithauer. 2011. "Monetary policy implementation and overnight rate persistence," *Journal of International Money and Finance*. vol 30: 1375 – 1386.

Reinhart, C. and V. Reinhart. 1999. "On the use of reserve requirements in dealing with capital flow problems". *International Journal of Finance and Economics*, vol 4, no 1: 27-54.

Schaechter, A., et al. 2000. "Adopting inflation targeting: Practical issues for emerging market countries". IMF. Occasional Paper No. 202.

Sellon, G. and S. Weiner. 1996. "Monetary policy without reserve requirements: Analytical issues". *Federal Reserve Bank of Kansas City Economic Review*, vol 81 (Fourth Quarter): 5-24.

---. 1997. "Monetary policy without reserve requirements: Case studies and options for the United States". *Federal Reserve Bank of Kansas City Economic Review*, vol 82 (Second Quarter): 5-30.

Whitesell, W. 2006. "Interest rate corridors and reserves". *Journal of Monetary Economics*, vol 53: 1153 – 1195.

Woodford, M. 2001. "Monetary policy in the information economy," Paper presented in the Symposium on Economic Policy for the Information Economy, Federal Reserve Bank of Kansas City: Jackson Hole, Wyoming.

Yun-Lee, J. 1997. "Sterilizing capital inflows". IMF.

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