

# What have emerging market central banks learned about the international transmission of monetary policy in recent years? The Philippine case

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## Abstract

An understanding of the transmission mechanism is essential to the appropriate design and implementation of monetary policy. Central banks must be alert to changes in the structure of the economy because they tend to alter the way in which a monetary policy change is transmitted to the economy. This concern applies as well to the international transmission of policy changes.

This study considers the mechanisms by which changes in policy rates in advanced economies are transmitted to the Philippine economy and finds that the exchange rate, risk-taking in global financial markets and inflation expectations have been significant channels of transmission. Moreover, changes in policy rates abroad have had an indirect influence on the Philippine policy rate, thereby affecting the outlook for Philippine inflation and growth.

Keywords: International monetary policy, monetary policy transmission mechanism, global financial crisis, Philippines

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## 1. Introduction

Over the past two decades, financial market behaviour and the conduct of monetary policy have changed significantly. The experience of most economies in reacting to the impacts of the global financial crisis in 2008–09 has underscored the importance of how monetary policy in one country can influence another country's monetary policy and thereby eventually affect its inflation and growth. These developments indicate that the monetary policy transmission mechanism may have changed since the global financial crisis.

Borio and Disyatat (2009) note that monetary policy before the global financial crisis was generally implemented with short-term interest rates. However, due to the subsequent flow of capital to emerging market economies (EMEs), most EME central banks have found it difficult to set monetary policy independently. This is because the increase in liquidity generated by the flows has posed upside risks to inflation, while a higher interest rate to address these pressures only risks stimulating further capital inflows. The measures adopted by recipient countries, including the Philippines, have included exchange rate flexibility, sterilisation and the accumulation of foreign exchange reserves.

An understanding of the transmission process in EMEs is essential to the appropriate design and implementation of monetary policy. Because changes in the structure of the economy – including changes in balance sheet positions, financial sector technology and institutions, or in expectations concerning future policy of advanced economies – tend to alter the economic effects of a given monetary policy change whether it originates abroad or domestically; central banks therefore must be alert to alterations in economic structure if they are to understand the current state of policy transmission.

This study examines the channels through which changes in policy rates in advanced economies are transmitted to the Philippine economy. The study finds that the exchange rate, risk-taking in global financial markets and inflation expectations have been significant as channels for transmitting the policy rate changes in advanced economies to the Philippine economy. Meanwhile, foreign policy rates have also had an indirect impact on the policy rate of the Bangko Sentral ng Pilipinas (BSP), to such an extent that changes in foreign monetary policy have affected the outlook for domestic inflation and growth.

The article highlights the increasing role of global factors in shaping domestic monetary policy outcomes (Section 2), details the various channels through which changes in international monetary policy are affecting the Philippine economy (Section 3), examines changes in the way the BSP conducts monetary policy (Section 4) and concludes with lessons for the formulation of monetary policy (Section 5).

## 2. Current context: global factors affecting domestic monetary policy outcome

Financial globalisation exposes EMEs to the volatility of international markets. In the literature on financial globalisation there is considerable discussion about the implications of large surges and volatility of capital flows, especially when they are

routed through the financial system.<sup>2</sup> The global financial crisis in 2008 coincided with a surge of gross capital flows into emerging market economies, a real appreciation of their currencies, and an increase in the prices of their main commodities, stocks, and houses.

In the Philippines, the current account has been in surplus since 2003 (Figure 1) because of higher remittance transfers from overseas Filipinos (OF) and receipts from business process outsourcing (BPO). As a share of gross domestic product, the current account surplus rose from 1.8% in 2004 to 4.6% at the end of September 2013. As a result of the more robust current account position, the level of gross international reserves (GIR) rose similarly. The accumulation of foreign exchange reserves has been driven by both cyclical and structural factors. The cyclical factors relate to the surges in capital inflows – direct and portfolio investments – which may be explained by push factors (ie monetary and fiscal policies of advanced economies) and pull factors (ie real divergences between EMEs and advanced economies).

At the beginning of the global financial crisis, low interest rates in advanced economies and the risk appetite of global investors drove capital out of advanced economies into EMEs; the favourable growth prospects of EMEs reinforced these flows by attracting capital into their markets. Meanwhile, in the Philippines, the increase in GIR has also been driven by structural factors, in particular the current account – merchandise exports, BPO services receipts, and the remittances of OFs. Figure 2 shows the rapid rise of GIR in the Philippines starting in 2010; by end-December 2013, it stood at \$83.2 billion.<sup>3</sup>

Meanwhile, the easing of foreign exchange regulations has helped mobilise foreign resources to finance the requirements of the domestic economy. As a result, financial market transactions have risen since 2007. The expanded domestic liquidity (M4) year-on-year growth in 2007 was 5.5%.<sup>4</sup> Meanwhile, the Philippine Stock Exchange Index has risen broadly since 2007. Likewise, led mainly by growth in the industrial, mining and oil, and holding firms sectors, stock market capitalisation rose, by 49.8% since year-end 2007 to reach PHP 11.9 trillion by year-end 2013.

The growth in capital flows has increased market volatility and amplified the transmission of shocks, with long-term interest rates increasingly determined globally. In the Philippines, the level and volatility of foreign portfolio investments with banks rose following the 2009 liberalisation of foreign exchange limits on foreign investments.<sup>5</sup> In both gross and net terms, portfolio investments have increased steadily since 2007, with larger flows recorded in the first and second quarters of 2008, the third and fourth quarters of 2009, and 2010. Between the third quarter of 2012 and year-end 2013, relatively large net portfolio investments were observed, largely in equities. In 2013, foreign portfolio investments registered a net

<sup>2</sup> See Prasad et al (2003).

<sup>3</sup> Revised. The level can adequately cover 12.1 months' worth of imports of goods and payments of services and income and is equivalent to 8.4 times the country's short-term external debt based on original maturity and 5.8 times based on residual maturity.

<sup>4</sup> Before the imposition of Supervision and Regulation Fees (SRF). Expanded M3 (or M4) includes domestic liquidity and foreign currency deposits of residents. Data are taken from Selected Economic and Financial Indicators, BSP.

<sup>5</sup> Based on Bayangos, Elloso and Hallig (2013).

inflow, owing mainly to net borrowings of residents from the rest of the world and to investments in equities, peso-denominated government securities and peso-denominated time deposits. In particular, registered portfolio investments surged by 53.7% from 2012 to \$28.4 billion, the highest level since 1999.

Where did these flows originate? The 2013 volatility in portfolio flows in the Philippines was influenced by push factors in the US economy. In that year, net outflows were registered during March, May, June and August. The net outflow during May and June were due to uncertainties following the Federal Reserve's May announcement about unwinding its QE measures. The net outflow during August was due mainly to the possibility that the Federal Reserve would scale down its QE programme. The increase in inflows for the rest of 2013 was a result of pull factors, such as the country's sound macroeconomic fundamentals and the investment grade ratings given to the country by three international rating agencies (Fitch, Standard & Poor's and Moody's), which helped sustain investor confidence in the Philippines.

Meanwhile, the channel through which movements in US 10-year bond yields impact Philippine 10-year bond yields has become relevant in recent years following the rise in foreign investment in bond markets,<sup>6</sup> which has pushed down the Philippine 10-year bond yield.<sup>7</sup> Using a vector autoregressive (VAR) model, the present study extended the time period covered by Moore et al (2013) and added the Philippines to the sample.<sup>8</sup> The results show that the degree of pass-through from the US 10-year bond to the Philippine 10-year bond became significant between 2008 and 2013 relative to the pre-crisis period of 2003–2007 (see Appendix).<sup>9</sup>

For the pre-crisis period of 22 July 2003–31 December 2007, a 1 percentage point increase in the US 10-year yield (sustained for three consecutive days) was associated with a 0.03 percentage point increase in the current Philippine 10-year bond yield. For the more recent period of 1 January 2008–26 November 2013, the correlation changes to a 0.16 percentage point decline in the current Philippine 10-year bond yield (with a lag of one day and significant at the 5% level).

<sup>6</sup> As indicated in Table C1 in the BIS questionnaire, local currency government bonds held by non-residents relative to total market capitalisation stood at about 10.3% in 2012.

<sup>7</sup> Shin (2013) calls the period from 2010 to the present the Second Phase of Global Liquidity. In this second phase, the main stage is the bond market, especially the market for emerging market debt securities that are open to international investors. By contrast, the first phase, from 2003 until the 2008 global financial crisis, had global banks at the centre, and the main focus was the transmission of looser financial conditions across borders through the acceleration of banking sector capital flows.

<sup>8</sup> Using a VAR model of daily data for the period July 2007–November 2011, Moore et al (2013) examined whether large-scale asset purchases (LSAPs) by the Federal Reserve influenced capital flows from the United States to EMEs; they also analysed the degree of pass-through from yields on long-term US government bonds to yields on long-term EME bonds. The EMEs in the analysis were the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Malaysia, Mexico, Poland, Singapore, South Africa, South Korea and Thailand. In the modification carried out by the present study, the period covered by daily data was extended back to 22 July 2003 and forward to 26 November 2013 and applied to all but five of the EMEs in the Moore et al (2013) sample plus the Philippines – because of data limitations, the Czech Republic, Hungary, Mexico and Singapore were dropped.

<sup>9</sup> With a lag of one day at the 5% level of significance. However, the impulse response to the euro area's 10-year bond yield was significant at the 5% level of significance.

The ongoing accumulation of foreign exchange reserves pushed up the liabilities of the BSP by 29.9%, 20.6% and 7.2% in 2010, 2011 and 2012, respectively. This growth mainly took the form of increased deposits, reflecting continued liquidity management operations by the BSP. A significant share of the growth came from accrued interest payables in the Special Deposit Accounts (SDA) – PHP 1.2 trillion for 2010 and PHP 1.6 trillion for both 2011 and 2012<sup>10</sup>. In 2013, outstanding balance of SDA dropped to PHP 1.4 billion. However, the accumulation of reserves has also caused the BSP to incur losses, which it has now done since the net loss of PHP 59.0 billion in 2010. The 2012 net loss of PHP 95.4 billion was nearly three times the 2011 net loss of PHP 33.7 billion. The loss declined for the first 10 months of 2013 (PHP 21.6 billion, 73% lower than for the year-earlier period).

The developments so far suggest that global factors are playing an increasingly important role in determining domestic outcomes. A closer look at the way in which changes in policy rates in advanced economies are transmitted to the Philippine economy may shed further light on the state of the relationship between monetary policy and global monetary conditions.

### 3. Channels of transmission of policy rate changes in major currency areas to the Philippine economy

***Developments in the global economy continue to feed through to the behaviour of the nominal peso-dollar exchange rate.*** Since the BSP adopted inflation targeting as its framework for monetary policy in 2002, the behaviour of the peso-US dollar exchange rate has been broadly consistent with the direction and magnitude of foreign exchange flows. This was most evident after the Federal Reserve in May 2013 signalled the possibility of tapering its asset purchases in the ensuing months. Prompting concerns of tighter liquidity conditions and higher interest rates, the signal stoked uncertainty in global financial markets. As investors sought relatively safer assets, EME currencies, including the peso, started to depreciate.

Several BSP studies have documented the influence of foreign exchange flows on the peso-dollar rate in the 2000s:

- Covering quarterly data for the years 2002 to 2010, a BSP study showed that surges in capital flows have driven the nominal peso-dollar rate and have also had a significant impact on both the BSP overnight borrowing rate and long-term Treasury bond rates.<sup>11</sup> Such surges have lessened the strength of the transmission from the policy rate to market interest rates.
- Simulation results for March 2001–March 2012 from a macroeconomic model built for the Philippines indicate that a significant increase in remittances has also curbed the transmission mechanism of policy: while the policy rate

<sup>10</sup> SRF-based.

<sup>11</sup> See Elloso and Redoblado (2012a).

continues to be effective in influencing market interest rates, the pass-through is lessened when the impact of large remittance flows are taken into account.<sup>12</sup>

- Movements in the Philippines' Exchange Market Pressure Index (EMPI) reinforce the finding that there was lower depreciation pressure on the peso-dollar rate from January 2008 to December 2013 – a period of substantial foreign exchange inflows – than from December 2002 to December 2007.<sup>13</sup>

Importantly, data also support the conclusion that structural factors have changed the trend and behaviour of the peso-dollar rate. Figure 3 shows that the trend of the nominal peso-dollar rate has changed since 2007. Employing the Bai-Perron test for structural break on the peso-dollar rate shows that there is a break in 2006, particularly in September.<sup>14</sup> In 2012, the peso averaged PHP 42.2/USD 1, appreciating by 8.6% from the PHP 46.2/USD 1 average in 2007 and by 18.2% from the PHP 51.6/USD 1 average in 2002. The peso was slightly weaker during 2013 at PHP 42.4/USD 1. The sustained inflow of foreign exchange from overseas Filipino remittances, export receipts, portfolio investments and foreign direct investments remained the fundamental drivers of the peso's strength. The peso was likewise anchored by the country's sustained economic growth and sound macroeconomic fundamentals.

***The risk-taking channel of international monetary policy transmission became more prominent after 2008, when policy rates in advanced economies reached near zero and prompted fund holders to seek higher returns elsewhere.***

Low policy rates and the significant asset purchases implemented in advanced economies have boosted the confidence of investors, increasing their appetite for relatively higher-yielding (and riskier) EME assets, especially equities, but also government and corporate bonds and credit default swaps (CDS).<sup>15</sup> According to the April 2013 *Global Financial Stability Report* (IMF, 2013b), external factors accounted for two-thirds of the local currency yield compression in EMEs in 2008, with domestic improvements explaining the remainder.<sup>16</sup> These developments are considered to have raised concerns over financial stability.

There were large swings in the entry and exit of registered foreign portfolio investments in 2013 and early 2014. Inflows started on a high of \$2.8 billion for January 2013 but dropped to \$1 billion in August 2013. In January 2014, foreign registered portfolio investments rose slightly, to \$1.5 billion. Meanwhile, outflows were on an uptrend, reaching \$2.9 billion in June 2013 – a reflection of the market reaction to the Federal Reserve's announcement about the unwinding of its stimulus

<sup>12</sup> See Bayangos (2012).

<sup>13</sup> The Philippine EMPI is computed as the sum of the monthly percentage change in nominal exchange rates and the negative of the monthly percentage change in gross international reserves scaled by the ratio of the standard deviations of the monthly percentage change in exchange rates to that of the monthly percentage change in gross international reserves. From December 2002 to December 2013, the EMPI averaged  $-0.275$  versus  $-0.75$  from December 2002 to December 2007.

<sup>14</sup> The apparent structural break in the peso-dollar rate behaviour reflects the impact of the easing of foreign exchange regulations that started in 2007 and the consequent surge in OF remittances. See Bayangos, Elloso and Hallig (2013).

<sup>15</sup> See International Monetary Fund (2013a).

<sup>16</sup> See International Monetary Fund (2013b).

programme. With the start of that unwinding in January 2014, outflows rose to \$3.1 billion.

According to the BSP *Annual Report* for 2013 (p 25):

The volatility in foreign portfolio investment took a toll on the stock market, as foreign investors became more cautious, despite the positive news of a robust Philippine GDP growth for all quarters and credit rating upgrades throughout 2013. Although foreign investors were net buyers of PhP 20.9 billion worth of stocks in 2013, it was down by almost 81 percent compared to net purchases in 2012. Foreign transactions as a proportion of total value traded reached 51.7 percent, higher than the 44.9 percent posted in 2012, highlighting the significant role played by foreign investors in the movement of the local market.

The BSP study mentioned in the previous section (Elloso and Redoblado 2012a and 2012b) provides evidence of the significance of the asset price channel in transmitting the international monetary policy stance. Five vector autoregressive (VAR) models were constructed to examine the effects of monetary policy shocks on asset bubbles and the impact of policy and market interest rates on portfolio flows for five asset classes – the composite equity price index, financial stocks, property stocks, the housing market and the foreign exchange market – from the full period 2001–11.<sup>17</sup> Looking closely at the variation in portfolio investments, the study finds that shocks in the peso-US dollar exchange rate contribute significantly to such variation, followed by shocks in the policy rate. Moreover, policy rates influence portfolio flows indirectly through their influence on market interest rates.<sup>18</sup>

***The role of the expectations channel in transmitting international monetary policy to the Philippine economy has become significant.*** The enhanced transparency and accountability associated with the shift to inflation targeting in 2002 have served to increase the BSP's awareness of the importance of the expectations channel in the conduct of monetary policy.<sup>19</sup> The results in another BSP study provide some evidence of the importance of inflation expectations in the monetary policy transmission mechanism in the Philippines.<sup>20</sup> Using a reduced-form equation model of survey-based expectations, the study found that the inflation target, actual inflation, fiscal policy indicators and the monetary policy stance were important drivers of the behaviour of inflation expectations from March 2002-June 2008 (pre-global financial crisis). This finding indicates that private agents assess the credibility of the BSP and base their expectations on what they have learned at the end of the current period and also that they are interested in the declining medium-

<sup>17</sup> Elloso and Redoblado (2012b). A longer series was also used to take into account the effects of the Asian financial crisis in 1997.

<sup>18</sup> It should be noted that monetary policy shocks in the study refer to unanticipated shocks to monetary policy. For a long time, it has been held that for monetary policy to be effective in affecting aggregate demand, policy shocks should be unanticipated. That is, the basis for policy action should be information not available to the public. Otherwise, changes to policy are anticipated and the policy will not be effective. However, analysis of the effects of anticipated shocks to monetary policy would require a more complicated and encompassing model, such as a dynamic stochastic general equilibrium (DSGE) model, to account for information frictions.

<sup>19</sup> See Fermo and Silva (2012). In broader terms, the finding is consistent with the observation that the BSP's transparency and communication practices are aligned with the core principles of international code and practices.

<sup>20</sup> Bayangos et al (2010).

term path of the inflation target announced by the monetary authorities. In addition, the finding reinforces the view that current monetary policy actions are effective tools for sending a clear signal about the central bank's future actions.

To assess the relevance of the expectations channel in recent years, we compare the behaviour of private sector inflation forecasts and the BSP's inflation forecasts from January 2009 to November 2013. Figure 4 shows that there seems to be some convergence between the two series, suggesting that inflation expectations continue to be well anchored. From January 2009 to November 2013, the inflation forecasts of the private sector have been broadly in line with the BSP's inflation forecasts, except in the period from June to October 2009.<sup>21</sup> The average variance between private sector forecasts and the BSP's monthly inflation forecast dropped from 4.3 percentage points in 2009 to 0.3 percentage points in 2011, and further to 0.1 percentage points in the January to November 2013 period. The relatively high variance in 2009 could be attributed to the uncertainty in financial markets following the impact of the global financial crisis in 2008–09.<sup>22</sup>

Overall, this convergence may reflect the positive response of the private sector to the BSP's communication strategy of announcing its inflation forecasts as well as its policy intentions over the medium term. In the past few years, the BSP has responded to inflationary pressures with gradual changes in the policy rate as a means of managing inflation expectations, avoiding policy surprises and signalling the BSP's commitment to its price stability mandate. Under its inflation targeting framework, the BSP recognises the importance of transparency and communication, which serve as key components for effective and credible monetary policy. This allows the BSP to carry out its mandate and policy decisions with greater information, predictability and accountability.

***Meanwhile, changes in foreign monetary policy rates have had an indirect impact on the BSP's policy rate sufficient to affect the outlook for domestic inflation and growth.*** A change in foreign monetary policy rates alters the movement of capital from one country to another. For example, the decline in foreign policy rates in advanced economies in reaction to the global financial crisis translated into large capital flows into EMEs, including the Philippines.<sup>23</sup> There are indications that changes in foreign policy rates may have affected movements in the BSP policy rate. The preliminary results of a Granger causality test between monthly changes in the BSP's overnight reverse repurchase agreement (RRP) rate and the Federal Reserve's federal funds rate from January 2002 to January 2014 show that changes in the US rate (Granger) cause changes in the BSP rate.

<sup>21</sup> The BSP's inflation forecasts are its monthly publicly announced forecasts. The private sector inflation forecasts are based on the BSP Private Sector Economists' Survey of inflation forecasts from selected banks, fund managers, some private research institutions and the academic world. The variance is the difference between the private sector forecasts and the BSP forecasts. A positive variance indicates that the private sector forecasts are higher than the BSP's.

<sup>22</sup> See BSP *Annual Report*, 2008 and 2009.

<sup>23</sup> See He and McCauley (2013).

## 4. The conduct of monetary policy in the Philippines in recent years

Under the BSP's inflation targeting framework, interest rate decisions are based on an assessment of the inflation environment, given inflation expectations and growth prospects. The BSP uses quantitative macroeconomic models to forecast inflation over a policy horizon of two years and to conduct policy simulations and analysis. A dynamic stochastic general equilibrium (DSGE) model had been in use to complement the Bank's workhorse models, the Single-Equation Model (SEM) and the Multiple-Equation Model (MEM). To capture the fundamental interlinkages among various sectors of the economy and to improve forecasting and policy simulations, the BSP utilized in 2012 the Macroeconomic Model for the Philippines (MMPH) to complete the SEM and MEM in lieu of the DSGE model.<sup>24</sup>

Mindful that no single model can address every issue confronting policymakers, the BSP considers all available data. It incorporates trends in aggregate supply and demand in its assessment of economic activity. It also takes note of developments in the financial markets and uses data on consumer and business sentiment as a gauge of market confidence and expectations.

Given the extent of interconnectedness of countries in the global market, the BSP also considers international economic and financial data (such as foreign policy rates, global long-term rates, exchange rates and risk-taking in global financial markets), especially those in the Asia region and in other countries with extensive economic and financial linkages with the Philippines. The BSP uses the following models and indicators to measure the significance of these developments:

- Philippine Financial Stress Index (PFSI): measures the degree of stress in the financial system through indicators such as, the two-year RP Treasury bond yield-to-maturity, JP Morgan Emerging Bond Index (EMBI)+ Philippines Sovereign spread, Philippine Credit Default Swap (Senior 5-year) spread, Philippine Stock Exchange Composite index, Philippine Interbank Call Loan rate, Chicago Board Options Exchange Volatility Index (VIX), Overnight Reverse Repurchase rate, Philippine Corporate Ba3-rated bond versus 10-year RP Treasury bond spread, spread of 3-month Philippine Interbank Reference (PHIREF) over 3-month London Interbank Offering Rate (LIBOR), spread of overnight PHIREF rate and overnight RRP rate, and nominal peso-dollar rate.
- Asset Price Bubble Index: uses indicators such as nominal peso-dollar rate, composite stock price index, property stock price index, financial stock price index, price of luxury residential units and house price index to measure the development of asset price bubbles.
- Bank Distress Index: uses indicators such as the proportion of financial assistance and liabilities of closed banks to the country's GDP in evaluating the possible occurrence of a banking crisis to evaluate the risk of a banking crisis.

<sup>24</sup> The MMPH is a semi-structural gap model that provides an organising framework for producing coherent forecast scenarios and policy analysis. The principle of the MMPH framework is to lay the building blocks that reflect key relationships for understanding the monetary transmission mechanism based on forward-looking agents and a central bank that reacts to the output gap as well to the deviation of inflation forecasts from target.

- Network Analysis: identifies major triggers and channels of contagion by measuring the financial interconnectedness of banks and corporates
- Stress Testing: measures the vulnerability of the banking system's capital adequacy ratio to changes in credit, market and liquidity risk
- Early Warning System: measures the probability of a currency crisis using indicators from the external, monetary, financial, real, fiscal and global economy

The BSP manages short-term interest rates with a view to influencing long-term rates, thereby managing expectations.<sup>25</sup> However, faced with the implications of the surges in capital inflows, in particular the wide swings in the exchange value of the peso, the increase in domestic liquidity and the heightened risks to financial stability, the BSP has resorted to other measures:

- *Participation in the foreign exchange market and accumulation of foreign exchange reserves.* The BSP participated in the foreign exchange market to dampen exchange rate movements. As a consequence, there was a considerable increase in the Philippines' gross international reserves (GIR), which grew at an average annual rate of 23.4% during the period 2005–12 (from \$18.5 billion in 2005 to \$83.8 billion in 2012). By year-end 2013, the country's GIR stood at a revised level of \$83.2 billion.
- *Rationalisation of reserve requirement policies.* The BSP made regulatory changes in reserve requirements as befit market conditions. The reserve requirement was lowered in 2008 to address potential credit tightening from heightened global risk aversion. In 2011, reserve requirements were increased to address rising domestic liquidity and the potential upside risk to inflation. In February 2012, operational adjustments were introduced to increase the effectiveness of reserve requirements as a monetary policy tool and simplify their implementation. The adjustments included the unification of the statutory reserve requirement and liquidity reserve requirement into a single set of reserve requirements and the non-remuneration of the unified reserve requirement. In March 2014, the BSP announced a 1 percentage point increase in banks' reserve requirement, effective April 2014, to address continued strong in liquidity and credit.
- *Changes in budget for the peso rediscounting facility.* The budget was increased in 2008 to allow banks to obtain loans from the BSP for short-term liquidity needs. In 2013, the BSP rediscounting facilities were restructured to align them with the market-based monetary operations framework and with the international central banking practice of scaling down directed credit operations.
- *Revisions of policies on the use of BSP fixed-term deposits.* The BSP introduced the SDA facility in November 1998 to expand its toolkit for liquidity management. In April 2007, access to the SDA facility was extended to trust entities to manage liquidity in the face of strong foreign exchange inflows. In 2011, the interest rate for the SDA was increased because of rising inflation pressures. Due to declining inflation pressures, the SDA rate was lowered to 2.0% in April 2012. On 1 January 2014, placements of trust entities in the SDA

<sup>25</sup> See Dacio, Robleza and Bayangos (2012).

facility became limited to funds from trust accounts allowed under existing regulations.

- *Role of communication.* The BSP ensured timely and clear communication with financial institutions and market participants. A clear public explanation of policy goals and strategies is crucial in guiding market expectations, particularly in times of frequent and large changes in policies and measures.

Meanwhile, some non-monetary policy measures have proved particularly helpful in maintaining monetary policy independence. The BSP monitors developments in various asset markets, particularly for indicators signalling the possible formation of asset price bubbles. Given the large amount of information required to identify bubble formation, the BSP relies more on supervisory and regulatory measures to manage these potential risks.

To restrain credit growth in the real estate sector, in February 2008 the BSP imposed a 20% limit on the lending of universal and commercial banks to the real estate sector (through BSP Circular No. 600). The coverage of the definition of real estate exposure was also expanded to include investments in debt and equity securities used to finance a broad range of real estate activities, including ancillary services like buying and selling, and rental and management of properties. In turn, year-on-year growth in total private sector credit declined from 16.8% in 2008 to 15.7% in 2011 and to 14.7% in December 2013.<sup>26</sup>

To manage capital flows, the BSP enforces certain administrative requirements for foreign investments and foreign loans. For foreign investments, no prior authorisation is required but there are registration mechanisms to allow foreign investors to use their peso divestment proceeds to buy another currency through BSP-authorized agent banks. However, if peso divestment proceeds are to be converted to another currency through non BSP-authorized banks or through foreign exchange corporations, registration is optional. Non-residents are not allowed to invest, directly or indirectly, in the BSP's SDA facility.

For foreign loans, all public and publicly guaranteed private sector obligations require prior BSP approval. BSP registration is also required for publicly guaranteed loans of the private sector.

To liberalise foreign exchange outflows, the BSP has allowed for the full repatriation of capital, dividends, profits and earnings of inward foreign investments registered with the BSP (or a duly designated custodian bank). The BSP has reduced the administrative requirements for certain outward investments of residents, and prepayments of private sector loans.

Certain further measures could be taken to address the implications of capital flows on the balance sheet of the BSP. These measures, however, would require amendment of the BSP Charter:

- *Higher capitalisation.* As the monetary authority, the BSP needs a higher level of capitalisation to meet the needs of the expanding economy and the growing complexity and sophistication of the financial system. Many of the important policy actions that the BSP needs to undertake in support of its mandate and core functions (such as engaging in open market operations, foreign exchange

<sup>26</sup> Pre-SRF-based data.

market intervention, acting as lender of last resort) may generate losses and weaken its capital position. As such, adequate capitalisation would allow the BSP to cope with fluctuations in its income stream.

- *Authority to issue own negotiable debt securities.* The restoration of the BSP's ability to issue its own debt securities would provide the BSP with greater flexibility in the timing and magnitude of monetary operations on its own initiative and would allow it to pursue its policy objectives more effectively. The use of the BSP's own debt securities to conduct open market operations would allow the BSP to better calibrate the size of its monetary operations to bring money market rates in line with its policy interest rate and better influence liquidity in the financial system.
- *Tax exemption from taxes, fees, charges and assessments relating to the BSP's core functions.* The operations of the BSP are guided by its mandate to maintain price stability and should thus be differentiated from the ordinary borrowing and lending operations of banks, which are in business for profit. Notwithstanding the attendant costs of a prolonged accumulation of foreign exchange reserves, EMEs, including the Philippines, have an incentive to keep readily available foreign reserves on hand as a precautionary measure.<sup>27</sup> Doing so creates a buffer to mitigate current- or capital-account shocks and could lessen the likelihood and impact of a sudden stop in capital inflows or of a rapid rise in outflows.
- *Allowances for foreign exchange and doubtful loans.* The establishment of adequate loss allowances and the creation of reserve buffers would allow the BSP to mitigate the risks and contingencies inherent in carrying out its mandated functions as the monetary authority. They would also ensure the availability of adequate resources so that the BSP can effectively respond to inflation pressures through policy actions. Such allowances and buffers are also common features of operations by other central banks in the region, helping them sustain operations and ensure financial soundness even during adverse economic conditions.

## 5. Conclusion: lessons on the international transmission of monetary policy

This study highlights the crucial role played by global factors in shaping domestic monetary policy outcomes. In the Philippines, the level and volatility of capital flows have increased significantly since the global financial crisis of 2008–09. The exchange rate, risk-taking in global financial markets and inflation expectations have served as the main channels of international monetary policy transmission. Meanwhile, foreign policy rates have also had an indirect effect on the BSP's policy rate, to such an extent that changes in foreign monetary policy affect the outlook for domestic inflation and growth.

<sup>27</sup> See Ghosh, Ostry and Tsangarides (2012).

Overall, the BSP's sustained flexible conduct of inflation targeting has been useful in promoting price stability amid surges in capital flows. However, there are important lessons for the future conduct of monetary policy.

First, monetary policy may need to lean against potential credit-driven bubbles; yet there is an interaction between monetary policy and macroprudential policy whereby tighter macroprudential policy would require easier monetary policy and vice versa. However, the empirical evidence in this area remains thin and reflects the difficulty in specifying the relevant mechanisms involved in the interaction between monetary policy and macroprudential policy. In the case of the BSP, macroprudential measures are a necessary complement to more conventional monetary tools.

Second, shocks from global financial markets may imply the need for the BSP to continue developing a formal framework to cope with potential financial disruptions. Such disruptions interfere with the flow of information in financial markets and thus prevent them from doing their job of allocating capital to productive investment opportunities (Mishkin 2013). The finding that movements in US 10-year bond yields have influenced Philippine 10-year bond yields in recent years suggests that the influence of globalised finance may continue to spread and deepen in the Philippines. Understanding the dynamics of globalised finance will undoubtedly improve the BSP's capacity to manage and mitigate potential shocks coming from the financial sector in the future.

Lam and Yetman (2013) point to some evidence of continued strong links between Asia-Pacific economies, including the Philippines, and advanced economies. Thus, it is highly unlikely that the Asia-Pacific region will decouple from developments elsewhere in the near future. Conditional on underlying macroeconomic volatility, advanced economies outside the Asia-Pacific region are likely to continue having large effects on the economies in the region.

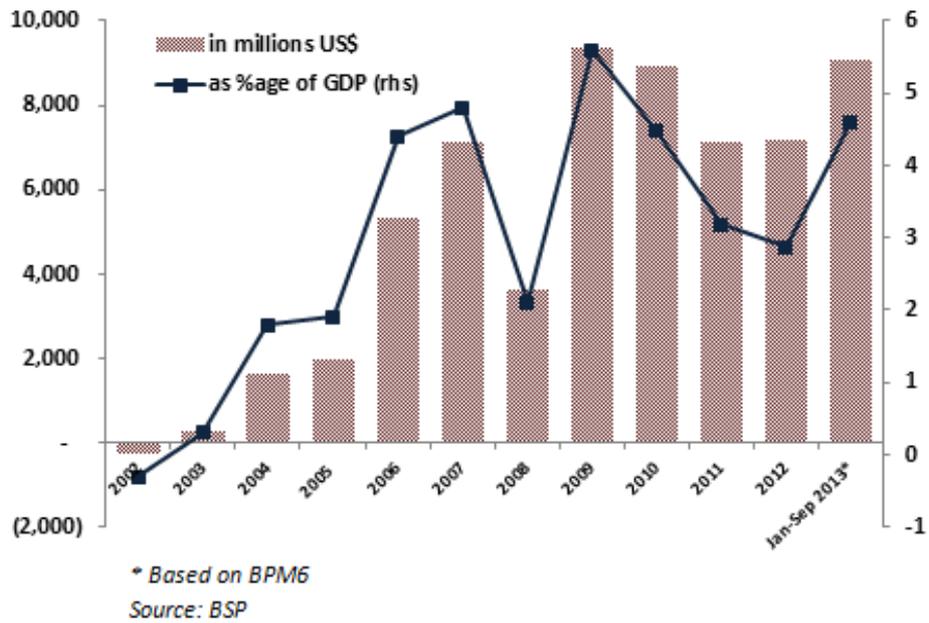
Third, the role of communication in managing private sector expectations is crucial for stabilising the economy, especially in the face of large adjustments in policy and its measures. Short-run panic in markets resulting from an unanticipated increase in the policy rate may have unwarranted effects; hence, it is essential to communicate to market participants the nature of a problem, the policy responses and the basis for the decision.

Fourth, there is no substitute for disciplined macroeconomic policies. To be effective, monetary policy may need to be complemented by appropriate macroprudential, fiscal, and financial sector policies; and be supported by strong supervision, a sound regulatory framework and effective enforcement.

The bottom line for the BSP is that it has to be prepared for greater challenges in its conduct of monetary policy. The course of policy following the global financial crisis has shown the importance of understanding the various aspects of the monetary transmission mechanism further. Policy transmission channels have changed in several important ways since the BSP adopted inflation targeting as a framework for monetary policy. Because the channels of transmission will continue to change as economies evolve, the BSP needs to remain alert to the implications of such changes as they calibrate their policy reaction to macroeconomic developments.

Current account position of the Philippines (2002–Sep 2013)

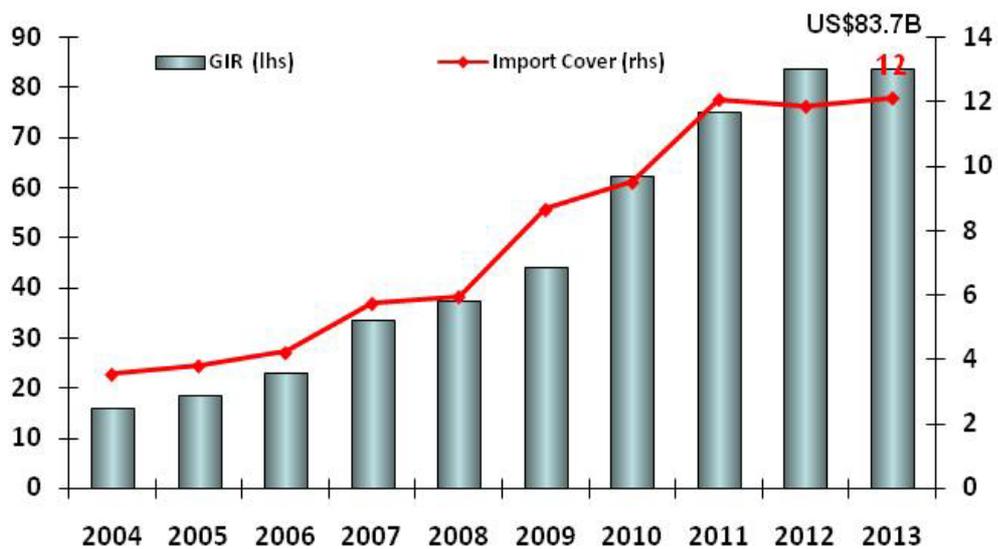
Figure 1



Source: Bangko Sentral ng Pilipinas.

Gross international reserves, 2004–13, USD billion

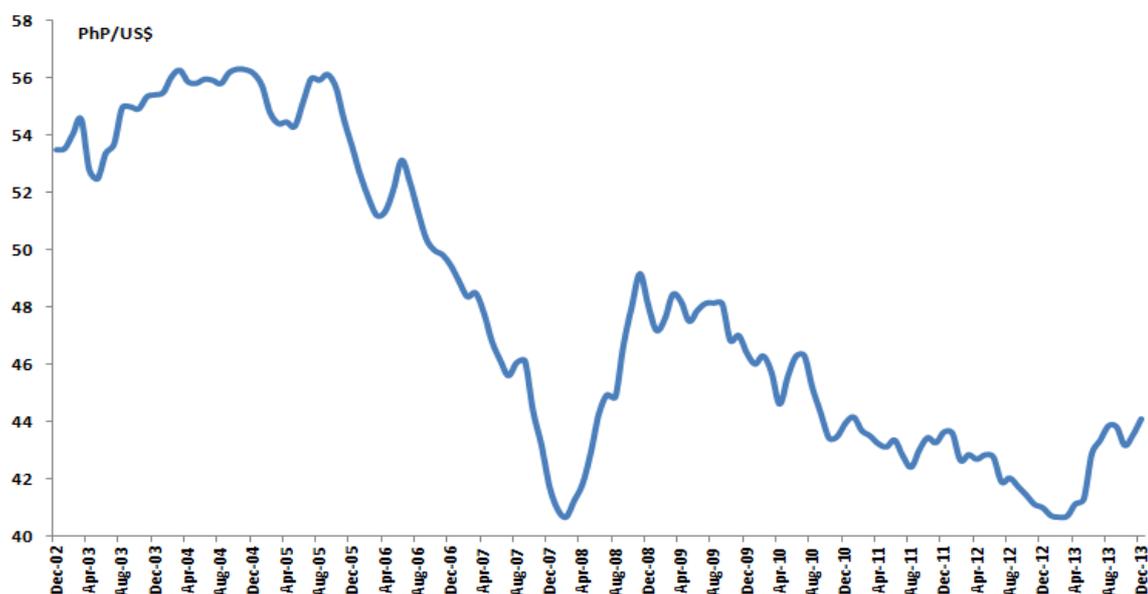
Figure 2



Source: Bangko Sentral ng Pilipinas.

Nominal peso-dollar exchange rate (average, December 2002–December 2013)

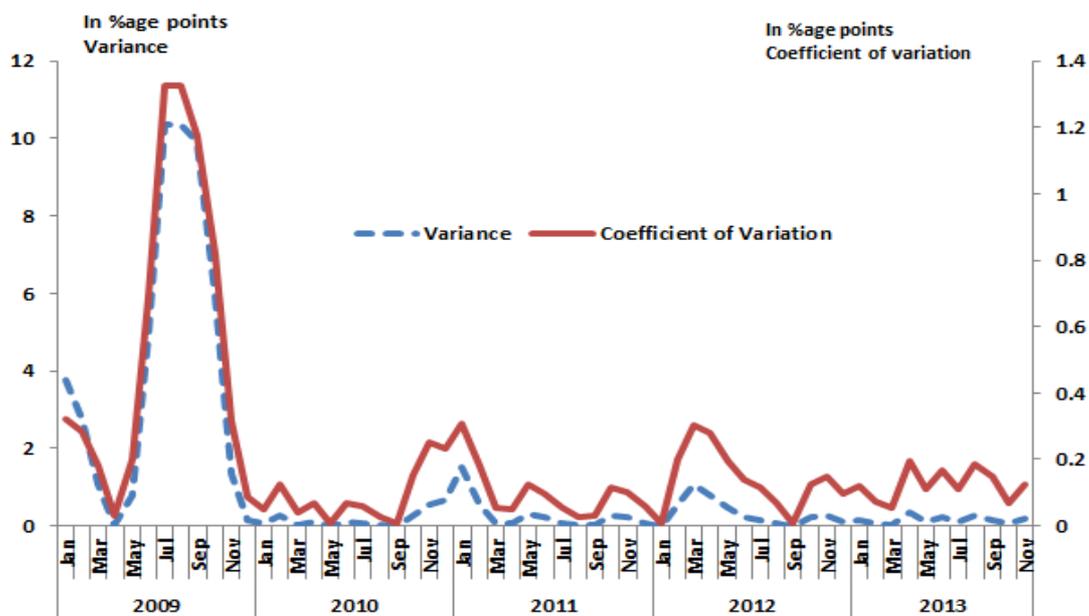
Figure 3



Source: Bangko Sentral ng Pilipinas.

Difference in inflation forecasts of the BSP and the private sector (2009–13)

Figure 4



Source: Bangko Sentral ng Pilipinas, staff estimates.

## Appendix

Moore et al (2013) examined whether large-scale asset purchases (LSAPs) by the Federal Reserve influenced capital flows out of the United States and into emerging market economies (EMEs). They also analysed the degree of pass-through from long-term US government bond yields to long-term EME bond yields. Using panel data from a broad array of EMEs, the empirical estimates suggest that a 10-basis-point reduction in long-term US Treasury yields results in a 0.4 percentage point increase in the foreign ownership share of emerging market debt. This, in turn, is estimated to reduce government bond yields in EMEs by approximately 1.7 basis points.

The quantification of these spillovers may assist in the calibration of short-term interest rate policies in developing economies. To this end, we conduct an empirical study of the impact of changes in longer-term US Treasury yields and LSAP announcements on 10 EMEs for which data on foreign investment in their government bond markets are available. Given separate estimates of the impact of US LSAPs on longer-term US yields, we can then infer the impact of US LSAPs on foreign investment and government bonds yields in EMEs. A vector autoregression (VAR) framework was employed in the analysis using two time series (the US 10-year Treasury bond yield and the Philippine 10-year government bond yield) and two time series (22 July 2003–31 December 2007 and 1 January 2008–26 November 2013). Since the Bank of England and European Central Bank were also employing bond purchase programmes over the same period, the euro- and pound-denominated 10-year yields were included as exogenous control variables in both VAR equations. All data were first differenced and five lags were used for US and Philippine bond yields. The following were estimated:

$$\Delta y_{(t)US} = \sum_{i=1}^5 \beta_i \Delta y_{(t-i)US} + \sum_{i=1}^5 \gamma_i \Delta y_{(t-i)PH} + \sum_{i=1}^2 \delta_i \Delta y_{(t-i)UK} + \sum_{i=1}^2 \theta_i \Delta y_{(t-i)Euro} + \varepsilon_t \quad (1)$$

$$\Delta y_{(t)PH} = \sum_{i=1}^5 \beta_i \Delta y_{(t-i)US} + \sum_{i=1}^5 \gamma_i \Delta y_{(t-i)PH} + \sum_{i=1}^2 \delta_i \Delta y_{(t-i)UK} + \sum_{i=1}^2 \theta_i \Delta y_{(t-i)Euro} + \varepsilon_t \quad (2)$$

where:

$y$  = government bond yields

$US$  = United States

$PH$  = Philippines

$UK$  = United Kingdom

$Euro$  = Euro area

$t$  = time

The VAR results are as follows:

<b>Sample: 22 July 2003–31 December 2007</b>	No. of obs	=	1,157
Log likelihood	=	2978.982	AIC = -5.118379
FPE	=	.0000205	HQIC = -5.08871
Det(Sigma_ml)	=	.0000199	SBIC = -5.039758

Equation	Parms	RMSE	R-sq	chi2	P>chi2	
Dph	15	.107473	0.0739	92.31771	0.0000	
Dus	15	.041837	0.3687	675.8577	0.0000	
	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]	
<b>dph</b>						
dph						
Lag 1.	.2339817	.0293952	7.96	0.000	.1763683	.2915952
Lag 2.	.0792232	.0300716	2.63	0.008	.0202839	.1381625
Lag 3.	-.0247032	.0293764	-0.84	0.400	-.0822798	.0328735
dus						
Lag 1.	-.0191164	.0612204	-0.31	0.755	-.1391061	.1008734
Lag 2.	.0432546	.0603144	0.72	0.473	-.0749594	.1614685
Lag 3.	.0028543	.0604158	0.05	0.962	-.1155586	.1212671
deu	-.3567874	.1773313	-2.01	0.044	.7043503	-.009224
dph	.2895174	.162362	1.78	0.075	-.0287063	.6077412
_cons	-.0028817	.0031519	-0.91	0.361	-.0090594	.0032959

<b>Sample: 1 January 2008–26 November 2013</b>	No. of obs	=	1,540
Log likelihood	=	3307.203	AIC = -4.271693
FPE	=	.0000478	HQIC = -4.248473
Det(Sigma_ml)	=	.0000467	SBIC = -4.209283

Equation	Parms	RMSE	R-sq	chi2	P>chi2	
dph	9	.121554	0.0178	27.86295	0.0005	
dus	9	.056608	0.3463	815.7798	0.0000	
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
<b>dph</b>						
dph						
Lag 1.	-.668681	.0255469	-2.62	0.009	-.116939	-.016797
Lag 2.	.0747992	.0255381	2.93	0.003	.0247453	.124853
Lag 3.	.0068614	.0254616	0.27	0.788	-.0430424	.0567653
dus						
Lag 1.	-.15843	.0458598	-3.45	0.001	-.2483136	-.068546
Lag 2.	-.0260011	.0447076	-0.58	0.561	-.1136263	.0616241
Lag 3.	.0000482	.0445514	0.00	0.999	-.087271	.0873674
deu	.0336096	.0991807	0.34	0.735	-.1607811	.2280002
duk	-.0046432	.0886156	-0.05	0.958	-.1783265	.1690402
_cons	-.0019994	.0030919	-0.65	0.518	-.0080594	.0040606

## References

- Bangko Sentral ng Pilipinas: *Annual Report* (for 2008, 2009, 2013).
- Bayangos, V (2012): "Going with remittances", *BSP Working Paper Series*, no 2012-01, July.
- Bayangos, V, L Elloso and J M Hallig (2013): "The impact of foreign exchange liberalization reforms on the Philippine economy: a preliminary assessment", BSP, unpublished, July.
- Bayangos, V, D Floro, J Basilio and E Glindro (2010): "Quantifying the inflation expectations channel in the Philippines: some preliminary results", BSP, unpublished.
- Borio, C and P Disyatat (2009): "Unconventional monetary policies: an appraisal", *BIS Working Papers*, no 292, November.
- Dacio, J, E J Robleza and V Bayangos (2012): "A note on the use of the BSP overnight policy rate as the major instrument of monetary policy", *BSP Economic Newsletter*, no 12-03, May-June.
- Elloso, L and J E Redoblado (2012a): "How effective is Philippine monetary policy in the face of large capital flows?", BSP, unpublished.
- Elloso, L and J E Redoblado (2012b): "interest rates and portfolio investments", BSP, unpublished, October.
- Fermo, L and R Silva (2012): "An assessment of the transparency and communication practices in monetary policy of the Bangko Sentral ng Pilipinas", *Bangko Sentral Review* Vol XIV pp 31-48.
- Filardo, A and J Yetman (2012): "The expansion of central bank balance sheets in emerging Asia: what are the risks?", *BIS Quarterly Review*, June.
- Ghosh, A, J Ostry and C Tsangarides (2012): "Shifting motives: explaining the buildup in official reserves in emerging markets since the 1980s", *IMF Working Paper* 12/34.
- He, D and R McCauley (2013): "Transmitting global liquidity to East Asia: policy rates, bond yields, currencies and dollar credit", *BIS Working Papers*, no 431, October.
- International Monetary Fund (2013a): "Global impact and challenges of unconventional monetary policies", *IMF Policy Paper*, October.
- \_\_\_\_\_ (2013b): *Global Financial Stability Report*, April.
- Kraft, E and T Galac (2011): "Macroprudential regulation of credit booms and busts: the case of Croatia", World Bank, *Policy Research Working Paper*, WPS5772.
- Lam, L and J Yetman (2013): "Asia's decoupling: fact, forecast or fiction?", *BIS Working Papers*, no 438.
- Mishkin, F (2013): "Central banking after the crisis", Central Bank of Chile, *Working Paper*, no 714, December.
- Moore, J, S Nam, M Suh and A Tepper (2013): "Estimating the impacts of U.S. LSAP on emerging market economies' local currency bond markets", *Federal Reserve Bank of New York Staff Reports*, no 595, January.

Prasad, E, K Rogoff, S Wei and M A Kose (2003): "Effects of financial globalization on developing countries: some empirical evidence", IMF, *Occasional Paper*, no 220, September 9.

Shin, H S (2013): "The Second Phase of Global Liquidity and its impact on emerging economies", keynote address at the Asia Economic Policy Conference, Federal Reserve Bank of San Francisco, 3–5 November.

