

Increased financial intermediation in the Philippines: some implications for monetary policy¹

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Abstract

This paper examines how the monetary transmission mechanism is affected by changes in the pattern of financial intermediation in the Philippines. By estimating the nature of monetary policy pass-through and the influence of monetary policy changes on outstanding bank credit, this study finds that, in general, monetary policy transmission has been stronger and faster, especially during the past decade. The estimates also indicate that banks have shifted to the Special Deposit Account rate as the basis for pricing loans, instead of the overnight policy rate. Meanwhile, the results of a rolling regression show that pass-through and speed of adjustment for the longer-term time deposit rate, Treasury bill rates and Treasury bond rates became stronger prior to the global financial crisis in 2008 and in 2012 following surges in capital flows. However, there was a general decline in the immediate pass-through for savings deposit and bank lending rates after 2012. When inflation and growth are considered, policy rate changes continue to be a significant driver of overall bank credit. These findings underscore the relative importance of the changing pattern of financial intermediation and the close interaction between monetary and financial stability.

Keywords: financial intermediation, monetary policy pass-through, Philippines

JEL classification: E52, E58, G15

¹ A paper prepared for the Bank for International Settlements Emerging Markets Deputy Governors Meeting, 26–27 February 2015, Basel, Switzerland. The usual institutional disclaimer applies.

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1. Introduction

This paper describes the changes in the pattern of financial intermediation in the Philippines and examines the corresponding implications for the transmission of monetary policy of the country's central bank. In recent years, the manner by which central banks conduct monetary has evolved, following the appearance of financial market rebalancing as indicated by, for example, the drop in interest rates and the rise in capital flows in and out of emerging market economies (EMEs). In the case of the Philippines, Guinigundo (2014) finds a relevant channel from movements of US Treasury bond yields to Philippine Treasury bond yields in recent years, following the rise in foreign investments in bond markets.³ A transmission channel behind such a finding has been the significant foreign equity and debt flows to emerging market economies, including the Philippines. In fact, outstanding transactions in the Philippine bond market have grown by 62.8% from 2007 to 2013, or an annual average of 9.5%, as non-financial corporations have tapped the bond market as an alternative source of financing. These developments imply that the pattern of financial intermediation from bank-based to market-based may have changed and that monetary policy may need to be re-assessed in the light of the possible impact of capital flows, not only in the financial sector but also in the real sector.

As indicated in many studies, financial markets are essential to the conduct of monetary policy as the latter is implemented mainly through the operation of these markets. In particular, the impact of monetary policy on the real economy depends on the structure of the financial system, including the degree of financial market development and changes in these markets that affect their functioning.⁴ Developments in the financial sector reflect changes in the structure of the economy – including changes in balance-sheet positions, financial sector technology, innovations and institutional changes mainly brought about by financial sector liberalisation, or in expectations concerning future policy of advanced economies. Given these developments, financial intermediaries, such as banks, have become more capable of reconciling the different motives of savers and borrowers in terms of maturity and returns in a globalised financial system. Because these changes tend to alter the economic effects of a given monetary policy measure, central banks need to continuously reinterpret the impact of such changes on the channels of monetary policy transmission.

Beck et al (2014) argued that the role of financial intermediaries in monetary policy transmission has evolved since the global financial crisis (GFC) in 2008. While the traditional literature focuses on overall loan supply, the post-GFC literature has emphasised the risk-taking channel of monetary policy, suggesting that low interest rates typically lead to the mispricing of risks, thus resulting in a lower risk premium and increased lending to riskier borrowers. The traditional view of monetary policy transmission has focused on the interest rate channel and the substitutability of different asset classes by investors, including banks. The traditional view of the

³ In particular, the results of the model show that the degree of pass-through from the US 10-year bond to the 10-year Philippine bond has become significant from 2008 to 2013 compared with the pre-crisis period of 2003 to 2007.

⁴ See Singh et al (2008).

monetary policy transmission mechanism views financial intermediaries more as a pass-through mechanism but not as market actors in themselves.

This study examines the impact of increasing financial intermediation on monetary policy pass-through and bank lending. In doing so, it considers both conceptual insights and empirical analyses in assessing the impact of financial intermediation on monetary policy. First, we revisit the role of financial intermediaries in the Philippine financial landscape. Second, the nature of interest rate pass-through is estimated from changes in policy rate to deposit rate, bank lending rates and to other long-term market interest rates using the insights from recent Philippine experience of financial intermediation. Third, the paper estimates a rolling regression with a five-year window to check the impact of structural changes and the global financial crisis on the monetary policy pass-through. Fourth, the study examines the influence of BSP policy actions on overall bank lending conditions.

The paper is structured in five parts. Section 2 highlights the role of the recent changes on financial intermediation in the Philippines. Section 3 details the impact of financial market developments on monetary policy in terms of immediate and long-run pass-through and the speed of adjustment to long-run relationships as well as the impact of monetary policy actions on the bank lending channel. Sections 4 and 5 conclude with implications for monetary policy formulation and a summary of findings and insights.

2. The role of financial intermediaries in the Philippine financial landscape

The role of financial intermediaries in the Philippines has evolved to improve financial depth, breadth and access.⁵ Such evolution, however, has been characterised by the fact that banks continue to dominate the Philippine financial system.⁶ As of end-December 2013, banks represented 35.4% of the total BSP-supervised financial institutions. Apart from banks, the BSP also supervises non-banks with quasi-banking functions and/or trust licenses, financial allied subsidiaries/affiliates of banks and quasi-banks, non-stock savings and loan associations, pawnshops and other financial institutions which under special laws are subject to BSP supervision. The number of financial institutions under the effective supervision of the BSP reached 27,939 as of end-December 2013. Of these financial institutions, pawnshops accounted for the majority at 63.2% or 17,652 units. Meanwhile, most of the banks are domestic (98.4%) and only a few are foreign (1.6%). Most foreign banks are branches of foreign banks and only a few are

⁵ Financial depth provides a measure of the size of the financial system relative to the size of the economy while financial breadth is a gauge of the relative importance of banks relative to capital markets. Financial breadth indicates how far the financial system has diversified from the provision of banking services toward greater use of capital markets for financing.

⁶ Major bank categories are universal and commercial banks, thrift banks and rural and cooperative banks.

foreign bank subsidiaries. As of end-December 2013, there were four offshore banking units (OBUs)⁷ operating in the Philippines.

Streamlining of the banks. The banking system has been streamlined as a result of continued industry consolidation and the exit of weaker players. The number of head offices declined in 2013 but this was offset by the increase in the number of newly established regular branches as well as “light branches” or other banking offices (OBOs)/microbanking offices (MBOs) that served as additional financial access points for the effective delivery of banking services particularly in the countryside. As of end-December 2013, there were 465 MBOs that offered a wide range of financial products and services particularly in hard-to-reach areas. With the forthcoming ASEAN economic integration by 2015, the continuing challenge for local banks is to scale up in size to be able to compete with the bigger banks in the region.⁸ Under the ASEAN Banking Integration Framework (ABIF), each ASEAN economy should have at least one qualified ASEAN bank (QAB) ready for regional passporting by 2018.⁹

Greater banking convenience. Banks have been responding well to market innovations for greater banking convenience (BSP (2014)). Electronic banking (e-banking) platforms have evolved greatly in recent years, including automated teller machine (ATM) networks, internet banking, mobile phone banking, and the use of electronic money (e-money) instruments such as cash/remittance cards and electronic wallets which are accessible via mobile phones or other access devices. To keep pace with changing market dynamics, banks have capitalised on the use of e-banking technology to provide fast, efficient and reliable services to a broader customer base. Developments in banking technologies will likely play a pivotal role as local banks gear up for greater competition and prepare for the ASEAN banking integration starting 2015. Moreover, competition is expected to heighten with the enactment of the Republic Act no 10641 on 15 July 2014, which liberalises the entry of foreign banks in preparation for the ASEAN financial integration.

Banks dominate the financial system amidst rising deposits by corporations in recent years. Banks captured an 81.3% share of the financial system’s total resources, while non-banks¹⁰ held only an 18.7% share as of end-December 2013. Since 2008, the asset¹¹ and liability structure of domestic banks has been stable. Deposit liabilities remained the major source of funding. Total deposits of all banks operating in the Philippines as of end-December 2013 grew by 181.3%

⁷ Section 1(b) of Presidential Decree no 1034 defines OBUs as a branch, subsidiary or affiliate of a foreign banking corporation which is duly authorised by the BSP to transact offshore banking business in the Philippines.

⁸ As of 5 March 2014, two Asian banks have formalised their plan to operate in the Philippines. This is on top of five other foreign banks that earlier expressed an interest in entering the Philippine market.

⁹ The full banking integration under ABIF is in 2020.

¹⁰ Non-bank financial institutions (NBFIs) are financial institutions that do not have a full banking license but they facilitate bank-related financial services, ie investment, risk pooling, contractual savings and market brokering. Only NBFIs with quasi-banking functions (NBQBs) and those without a quasi-banking function but are subsidiaries and affiliates of banks and NBQBs are subject to BSP supervision. There were 12 operating NBQBs in the Philippines consisting of five investment houses (IHs), six financing companies (FCs) and one other non-bank as of end-December 2013.

¹¹ Banks’ assets are mainly in the form of loans and cash and due from BSP/other banks.

from end-December 2004 and by 80.4% from end-December 2008, largely from non-financial and financial corporations. It may be noted that from end-December 2008, deposits by non-financial corporations and financial corporations with banks rose by 112.8% and 195.4%, respectively, to end-December 2013, or an annual average of 20.3% for non-financial corporations and 37.1% for financial corporations from 2008 to 2013.

Steady build-up in cash and due from BSP/other banks notable after 2008.

Meanwhile, banks' preference for safe and liquid assets such as the BSP-managed Special Deposit Accounts (SDA) reflected their search for higher yield and at the same time, a strong demand for safety in order to manage liquidity. In turn, the share of cash and due from BSP/banks to total assets rose to 24.5% at end-December 2013 from 13.7% in 2009. Meanwhile, banks' other assets, which include derivatives for trading and non-deliverable forward (NDF) activities, continued to drop in end-December 2013. The latter decline was due to the impact of the BSP's measure in December 2012 to impose limits/caps¹² on banks' NDF activities to avoid potential systemic risks from these transactions.

Bank loans structure generally steady. The structure of the domestic banks' loans has not changed in recent years. The total loan portfolio¹³ amounting to PHP 4.3 trillion as of end-December 2013 was largely peso-denominated (88.1%) and comprises mostly loans and receivables. Loans to private corporations accounted for the bulk (52.5%), followed by loans to individuals for consumption purposes (17.1%). Meanwhile, there was a slight shift in the asset mix of foreign banks from loans and investments to safer and more liquid cash and due from banks after 2008. Nonetheless, foreign banks subsidiaries continued to extend credit to domestic borrowers. In particular, in 2013, foreign bank subsidiaries, which sourced 70.0% of their liabilities from the peso deposits of residents, granted loans to households (residential borrowers) amounting to PHP 69.3 billion (or 1.5% of the total loans to residents), of which 13.1% was in foreign currency.

Bank loans to the real estate, renting and business services (RERBA) sector have risen since 2012. The manufacturing sector used to account for the bulk of the loans outstanding of universal and commercial banks to production sectors, but this trend has changed since September 2012, when RERBA's share to total loans has started to exceed that of the manufacturing sector. From December 2009 to August 2012, the average share of manufacturing sector was 18.7%, while that of RERBA was 17.5%. From September 2012 to January 2015, the average shares of RERBA and manufacturing were 20.1% and 18.2%, respectively.¹⁴ The outstanding loans of universal and commercial banks to RERBA grew by 12.3% at end-December 2009 and by 22.0% at end-December 2013. In January 2015, outstanding loans to RERBA continued to post a double-digit growth (15.4%) and its share (19.9%) continued to be the highest among the production sectors, although in terms of growth, signs of deceleration have been observed recently.

¹² The limits/caps include: (a) limiting local banks NDF exposure to 20.0% of capital; (b) limiting local branches of foreign banks NDF exposure to 100.0% of capital; and (c) forbidding pre-termination of NDF contracts, see www.bsp.gov.ph/downloads/publications/faqs/exchange.pdf.

¹³ Net of specific loan loss provisions

¹⁴ It should be noted that prior to 2001 the banking system's outstanding loans to real estate, renting and business services included financial institutions.

Pre-emptive macroprudential measures were adopted in 2014 to manage potential risks in real estate financing. These measures include increased monitoring of banks' real estate exposures, the implementation of the real estate stress test (REST)¹⁵ limit for real estate exposure, and the enhancement of rules on credit risk management. In terms of real estate exposures (REEs), the REEs of universal, commercial (U/KBs) and thrift banks (TBs) reached PHP 1.2 trillion at end-September 2014. This is 5.6% higher relative to the previous quarter, representing 22.1% of total loan portfolio of U/KBs and TBs during the period. The expansion in banks' REEs is primarily attributed to the growth of real estate loans, which comprised 84.3% of REEs as of end-September 2014. Of total real estate loans, about 60%¹⁶ were obtained by land developers, construction companies and other corporate entities, while the remaining were received by borrowers acquiring residential properties.

Nevertheless, banks displayed strong profitability through 2013 amidst the search for higher-yielding assets. Driven mainly by interest payments on loans, along with reduced interest payments on deposit liabilities, the latest bank capital adequacy ratios (CAR) of 17.7% as of end-December 2013 for the Philippine banking system and 17.0% as of end-September 2014 for universal and commercial banks are both above the BSP (10%) and international standards (8%). However, non-interest earning activities¹⁷ registered a rising and significant contribution to net profit growth, reflecting the industry's search for higher yields by taking on more risky assets. Among non-interest based revenues, fees and commissions, unrealised gains from the marking to market of financial instruments, particularly of derivatives such as financial futures, options, forwards and swaps and profits from sale/redemption/de-recognition of non-trading financial instruments, displayed a notable increase (BSP (2014)).

Non-financial corporations' leverage has increased while that of households has remained modest. Meanwhile, the borrowings of non-financial corporations (NFCs) have increased over the past seven years, based on a BSP internal study.¹⁸ The rising debt levels of about 66 sampled firms resulted in their combined debt-to-equity (D/E) ratio climbing from 76% in 2007 to 99% in 2013. The rise in leveraged positions can be attributed to the accommodative lending environment that allowed firms to acquire funding at favourable costs. Meanwhile, the latest data show the steady rise in consumer loans extended by banks, both in absolute terms and relative to the size of the economy.¹⁹ The year-on-year growth

¹⁵ REST is a pre-emptive macroprudential measure that was introduced in May 2014 to contain the possible formation of asset price bubbles. It is a prudential real estate stress test (REST) limit on the aggregate real estate exposures of universal/commercial banks (U/KBs) and thrift banks, on a solo and consolidated basis. The REST limit combines a macroprudential overlay of a severe stress test scenario, the principle of loss absorbency through minimum capital ratio thresholds, and heightened supervisory response.

¹⁶ Data as of end-June 2014.

¹⁷ Refers to fees earned on core operations such as deposit-taking and lending, and fees and commissions from the trading and selling of financial instruments.

¹⁸ Based on the Financial Stability Report of the Financial Stability Committee, June 2014 (BSP internal report).

¹⁹ Consumer credit extended by banks includes auto loans, credit card receivables, residential real estate loans and other personal loans. For the purposes of classifying household loans into housing

of outstanding consumer loans rose from 2.4% at end-December 2000 to 18.1% at end-June 2014. In terms of the ratio to nominal GDP, consumer loans rose steadily from 2.7% in 2000 to 6.7% in June 2014.

Financial market developments indicate a change in the pattern of intermediation in recent years. While bank loans have remained the major source of finance for the private sector, some non-financial corporations have tapped market-based financing for their business operations since 2007. Along with the streamlining of the banks and market innovations, such a change is expected to influence the pass-through to the lending rate. To the extent that assets have found their way back to banks' balance sheets in the form of higher-yielding debt securities and deposits with the BSP's SDA facility, the strategic and operational aspects of monetary policy will become more challenging in the future.²⁰

3. Financial developments and monetary policy in the Philippines: some evidence using the interest rate pass-through and bank lending

This section examines whether increasing financial developments have had any discernible impact on the monetary policy transmission mechanism by changing the interest rate pass-through. This study estimates the immediate and long-run pass-through and the speed of adjustment towards the long-run impact. In many studies, the interest rate pass-through from the policy rate to bank deposit and lending rates, along with Treasury bill rates and Treasury bond yields, is clearly an important dimension of the effectiveness of monetary policy in affecting aggregate demand and inflation, even in the presence of capital flows. Monetary policy transmission is expected to be faster and stronger following financial market developments, implying that monetary policy has become more efficient in influencing the cost of funds. Otherwise, a slower and weaker pass-through suggests that monetary policy has become less effective in transmitting impulses to the real sector.

3.1 Empirical methodology

Using the two-step Engle-Granger Error Correction Model (ECM), this study followed Singh et al's (2008) specification to assess the importance of financial market developments in influencing the pass-through from changes in the policy rate to bank retail rates, savings and time deposits to other market interest rates (bank lending rates), the short-term paper rate (91-day and 364-day Treasury bill rates) to the long-term bond rate (five-year and 10-year Treasury bond rates) from 1986 to 2014.

and consumer credit, we reclassified consumer credit to include auto loans and credit card receivables only.

²⁰ See Genberg (2008).

The first step estimates the long-run relationship between the market interest rates (i) and the policy rate (ρ) in equation 1 below,

$$i_t = a^* + \beta^* \rho_t + \varepsilon_t. \quad (1)$$

The second step estimates the short-run relationship in equation (2) below by incorporating the error correction term or the lag residual from the long-run relationship in equation (1).

$$\Delta i_t = \gamma + \alpha_1 \Delta i_{t-1} + \alpha_2 \Delta i_{t-2} + \beta_0 \Delta \rho_t + \beta_1 \Delta \rho_{t-1} + \beta_2 \Delta \rho_{t-2} + \delta \varepsilon_{t-1} + \mu_t. \quad (2)$$

The immediate impact or pass-through is represented by β_0 in equation 2, the long-run pass-through is represented by β^* in equation 1, and the speed of adjustment towards the long-run relationship is represented by δ in equation 2.

The results in Table 1 (Appendix A) highlight the following insights:

- In general, there is evidence of stronger pass-through using the BSP overnight RRP rate starting in 2002 or the start of inflation targeting (IT) as the framework for monetary policy. Moreover, the speed of adjustment towards the long-run impact appears to be faster during the shorter (IT) period compared to the longer time period, indicating that market innovations may have helped to accelerate the transmission to market interest rates.
- Among the different types of market rates, the long-run pass-through is largest for longer term rates, such as five-year and 10-year Treasury bonds, followed by 91-day and 364-day Treasury bill rates, bank lending rate, time and savings deposit rates.
- However, the average immediate pass-through during the IT period is less complete and slower than the average long-run pass-through.
- Notably, there is negative immediate pass-through to the bank lending rate, an indication of an apparent disconnect between the BSP overnight RRP rate and the bank lending rate in pricing loans during the IT period.²¹

An important observation on the estimated interest rate pass-through is the apparent change in banks' interest rate benchmark for lending from the overnight policy to the SDA rate. It can be recalled in Section 2 that banks' cash holdings and deposits with the BSP have grown significantly since 2008, implying that banks, in the aftermath of the GFC in 2008, have decided to invest in safer and higher-yielding investments.²² In line with this development, this paper uses the weighted policy rate to determine the interest rate pass-through to market interest rates from 1991 to 2014. The exercise yielded the following results:

- Table 1 shows that using a weighted policy rate, or a weighted average of the overnight RRP rate and SDA rate, a stronger and faster average pass-through can be observed from 1991 to 2014. A closer look at the IT period (2002 to 2014) shows that the average long-run pass-through is stronger but the

²¹ The results also show that there is a negative immediate pass-through to five-year and 10-year Treasury bond rates. However, the adjusted R^2 is not significant.

²² This includes deposits held by banks with the BSP under the Special Deposit Account (SDA) facility. As of end-December 2013, SDA outstanding balance amounted to PHP 1.4 trillion. This amount has declined to PHP 1.1 trillion as of end-September 2014.

average immediate pass-through seems weaker than the longer time series (1991 to 2014).

- By type of market interest rate, savings deposit and bank lending rates appear to have had an incomplete long-run pass-through and slower adjustment even during the IT period, following the cut in the BSP policy rate in 2012.²³

There are two possible reasons for the apparently weaker immediate monetary pass-through. One is lower inflation expectations. In an environment of stable and constant inflation expectations, responses to policy rate changes are expected to be partial as increases or decreases in policy rates would be viewed as temporary and likely to revert to average or normal levels. 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 (Guinigundo (2014)). A comparison of the behaviour of private sector inflation expectations and the BSP's inflation forecast from January 2009 to October 2014 implies some convergence between the two series, suggesting that inflation expectations continue to be well anchored.²⁴ A recent international survey has identified the Philippines as one of the countries for which transparency has improved the most (Dincer and Eichengreen (2014)).²⁵

Based on a few studies, another factor which could account for lower immediate pass-through to long-term bond rates is the perceived strong correlation between long-term bond rates across countries following surges of capital flows.²⁶ Studies have noted that yields on longer-term domestic bonds have been affected by global monetary factors especially after the GFC. This is seen as emerging market economies' domestic bond markets have grown and foreign participation has risen, domestic yields have become more closely linked to yields in the main financial centres. In such a scenario, monetary policy may have become less effective as raising policy rates does not necessarily increase interest rates at the longer end. Using a vector autoregressive (VAR) model, the channel from movements of the US 10-year bond yields to the Philippine 10-year bond yields has been found to be relevant from 2008 to 2013 compared to the pre-crisis period of 2003 to 2007, following the rise in foreign investments in bond markets (Guinigundo (2014)).

To check whether structural changes in the policy framework could have fundamentally affected the nature of interest rate pass-through, including the impact of GFC, a rolling regression was estimated with a five-year window from 2002 to 2014 using the BSP overnight RRP rate and the weighted policy rate

²³ The overnight policy rate was reduced by 100 basis points in 2012 and was raised by 50 basis points in 2014.

²⁴ Average coefficient of variation between the private sector and the BSP's monthly inflation forecast dropped from 0.6 in 2009 to 0.1 percentage points in 2012 to 0.04 percentage points from January to October 2014. Such a convergence may reflect the positive response of the private sector to the BSP's communication strategy of announcing its inflation forecast as well as its policy intentions for the medium term.

²⁵ The other central banks for which the transparency index increased the most include Hungary, Thailand and Turkey.

²⁶ Ghosh et al (2012) also found that during periods of surging capital inflows, such flows tend to be directed more toward bank loans and debt securities. This relationship is presumably because debt flows are the most responsive to changes in global environment and relative rates of returns.

(Appendix B).²⁷ The results show that, in general, the immediate and long-run pass-through and speed of adjustment for time deposit rate, 91-day and 364-day T-bill rates and five-year and 10-year T-bond rates became stronger prior to 2007 (or, prior to GFC), remained steady from 2009 to 2011 and strengthened in 2012.

From the supply side, the apparently stronger and faster monetary pass-through seen especially in longer-term T-bill and T-bond rates prior to 2007 and 2012 onwards partly reflected the significant flow of capital to capital markets from advanced economies to the Philippines. From the supply side, the decision of the BSP to cut its policy rate by 100 basis points (25 bps each in January, March, July and October) seems to have enhanced the pass-through from the policy rate to five- and 10-year Treasury bonds. Based on our studies, surges in capital flows tend to depress market interest rates. However, the reduction in the BSP policy rate in 2012 instead worked in the same direction as capital flow surges. Such an impact would then have had a cumulative impact on the longer tenors, due to lags in the transmission of policy, which would have raised the measured transmission to longer tenors.

From the demand side, such a finding mainly underscores the credibility of inflation targeting to anchor inflation expectations and the institutional reforms the Philippines has implemented to broaden the development of the Philippine capital markets and to enhance system integrity and market confidence which contributed to well functioning financial markets. These reforms include the issuance of a broader array of securities to satisfy specific investor preferences and the improvement in the infrastructure of the government securities market.²⁸

By contrast, there was a general decline in the immediate pass-through for savings deposit and bank lending rates after 2012. This finding implies that the reduction in policy rate and lower inflation expectations on savings deposit and bank lending rates may have affected the immediate monetary policy pass-through.

As a caveat, this exercise assumes that, aside from policy rate, there are no other variables that would explain the movements of market interest rates. The study takes this as an area for further research.

3.2 The bank lending channel

This paper extends the analysis of monetary policy pass-through as a gauge on how monetary policy actions influence overall bank lending behaviour using additional economic indicators, such as real GDP growth and inflation. Recent empirical studies have distinguished the impact of credit channel on monetary policy through firm's balance sheets and the bank lending channel.²⁹ Findings from recent studies have found the presence of the risk-taking channel of monetary policy by using monetary policy decisions exogenous to the economy as an identification strategy and

²⁷ Appendix B shows major interest rates only, such as the 91-day Treasury bill rate, bank lending rate and the five-year Treasury bond rate.

²⁸ M Tũaño-Amador, E Glindro and R Claveria, "Some perspectives on the monetary policy transmission mechanisms in the Philippines", *Bangko Sentral Review*, 2009.

²⁹ See Kashyap et al (1993).

loan/borrower-level data to estimate risk differentials.³⁰ In a separate research paper, Meisenzahl (2014) finds a stronger effect of the balance sheet channel mechanism during normal times, while the bank lending channel gains importance during the crisis.

In the Philippines, the presence of a bank lending channel was confirmed in few recent studies (see Guinigundo (2008), Bayangos (2010) and Aban (2013)). Banks are still the major sources for financing for the private sector, and monetary policy tends to affect loan growth, especially for small banks. Using Aban's (2013) specification, this paper empirically tests the presence of a bank lending channel from the first quarter of 2001 to the third quarter of 2014, using banks' year-on-year growth of loans outstanding (net of reverse repurchase) as the dependent variable and the year-on-year growth of real GDP, year-on-year inflation, overnight RRP rate and an error term as independent variables (Table 2, Appendix A).³¹ To check the robustness of the regression equation, this exercise uses the weighted policy rate (combination of the overnight RRP rate and SDA rate) as alternative benchmark rate for pricing loans.

The estimates show that bank lending is a significant channel of monetary policy transmission even with the impact of the GFC. In particular, the results indicate that movements in monetary policy (whether using the overnight RRP rate or the weighted policy rate) are significant and inversely related to loan growth. Together, these results may suggest that the influence of monetary policy on bank credit has become more important amidst changes in the pattern of financial intermediation.

4. Implications for monetary policy

In most studies, financial deepening and greater competition among financial intermediaries typically serve to increase the influence of monetary policy on the economy. The findings of this paper so far indicate that there is indeed a mutual dependence between conducting monetary policy and promoting the development of financial markets. Such a relationship poses some implications with regard to the formulation and conduct of monetary policy.

First, the finding that financial development has, in general, led to stronger interest rate pass-through – in terms of immediate and long-run pass-through – and faster adjustment to the long-run relationship especially during the inflation targeting period indicates that IT should remain at the centre of the monetary policy framework amidst the challenges posed by increasing financial intermediation. In fact, interest rate pass-through is expected to become much stronger in the near future with the current trend towards greater financial integration, particularly in the Asian region. This means that the effectiveness of monetary policy in Asian

³⁰ See Jimenez et al (2012), Ioannidou et al (2009), and Beck et al (2014).

³¹ In the initial estimates, the growth of M2 (savings and time deposits), nominal peso-dollar rate and the gap between actual CAR from the BSP and BIS limits were included as additional factors affecting loan growth. These variables were subsequently removed from the final equation as the coefficients of these variables were statistically insignificant at the 5% and 10% level of significance.

countries is likely to increase in the future, at least in terms of its influence on the cost of funds.

Second, the finding that the immediate pass-through during the IT period has been less complete and slower than the average long-run pass-through implies that inflation targeting has been effective in anchoring inflation expectations to achieve stable inflation, even in periods of uncertainty. The BSP manages short-term interest rates to influence long-term interest rates, thereby managing expectations. At the same time, faced with the implications of the surges in capital inflows, in particular, the wide swings in the peso movements, the increase in domestic liquidity and the heightened risks to financial stability, the BSP's credibility in managing uncertainties has been important. In the past few years, the BSP has responded to inflationary pressures with gradual changes in its policy interest rate as a means of managing inflation expectations, avoiding policy surprises, and signalling the BSP's commitment to its price stability mandate.

Third, the finding that the immediate pass-through has been partial for almost all market rates, especially during the IT period, indicates that a more in-depth examination of the neutral policy interest rate may need to be considered and a longer forecast of relevant indicators for monetary policy beyond the two-year policy horizon may need to be explored. This is necessary because, under the BSP's inflation targeting framework, decisions on interest rates are based on an assessment of the inflation environment over a policy horizon of two years, given inflation and growth prospects. Genberg (2008) argued that financial market developments may have changed both the neutral (equilibrium) policy interest rate and the horizon of relevant forecasts, including inflation.

Fourth, the finding that monetary policy changes directly feed into longer-term Treasury bond rates implies that, as financial markets develop, monetary policy operations will have to be more flexible. This means that, while monetary policy has relatively limited capacity to offset the spillovers that global economic and policy developments can impose on domestic economies, monetary policy should be able to complement structural and macroprudential policies in countering short-term economic fluctuations. With integrated global capital markets, movements in long-term Treasury bond rates can be heavily influenced by cross-border transaction flows around capital movements, trade financing, remittances and price arbitrage, and risk transfer instruments. This implies that central banks operating in floating exchange rate regimes, particularly in smaller countries, are constrained in their ability to run independent monetary policies, as international investor activity has a greater influence over long-term rates (Wheeler (2014)).

Towards this goal of making monetary policy more adaptive and flexible to changing market conditions, the following insights and experiences explain some factors that can help to maintain the central bank's effectiveness in generating financial market responses for the transmission of its monetary policy.

4.1. Role of financial market information

At the BSP, financial market information is used to understand policy expectations as well as the influence and transmission of monetary policy in the financial markets over the short and longer term. Financial market surveillance through the Environment Scanning Exercise (ESE) at the BSP is a synthesis of both in-depth research and dialogue with market participants. Alternative methods include using

the survey data of forecasts by financial market analysts, financial market indicators and surveys of traders conducted ahead of each policy announcement. Such data and information from market participants can be assessed and incorporated into the macroeconomic modelling process.³²

4.2. Calibration of monetary tools to address the greater role of financial markets in policy transmission

Macroprudential policies should be used to help prevent asset price booms and complement monetary policy. But there is still scope to further determine the interaction of monetary and macroprudential policies, the costs and benefits of macroprudential interventions, and the circumstances where such policy initiatives are likely to be successful. In the case of the Philippines, the BSP resorted to other measures, such as an increase in the reserve requirements and measures to identify bubble formation.

The BSP has rationalised banks' reserve requirements policy since 2008. The reserve requirement ratio was reduced in 2008 following the global credit tightening during the GFC but was raised in 2011 to mitigate the increasing level of domestic liquidity and the upside risks to inflation. To simplify the implementation and increase the effectiveness of reserve requirement as a monetary policy tool, operational adjustments were introduced in February 2012. The adjustments included the unification of the existing statutory reserve requirement and liquidity reserve requirement into a single set of reserve requirement; and the non-remuneration of the unified reserve requirement. In 2014, the BSP announced increases in banks' reserve requirement ratio by 1 percentage point effective April 2014 and another 1 percentage point effective May 2014 to address the continued strong liquidity growth and rapid credit expansion.

4.3 Reliance on prudential measures

Given the high information requirements to identify bubble formation a priori, the BSP relies more on supervisory and regulatory measures to manage these potential risks. In particular, the BSP has issued several regulatory reforms to further strengthen risk management practices in the banking system and enhance capital buffers against possible unforeseen shocks. These measures include: (a) approval of enhanced regulation on credit risk management of banks and quasi-banks; (b) approval of guidelines for determining so-called "D-SIBs" or banks which are deemed systemically important within the domestic banking industry; (c) increases in the minimum capital requirements for all bank categories, on top of the capital requirement under Basel III; and (d) approval of the amendments to the regulations

³² The BSP uses the Philippine Financial Stress Index (PFSI) to measure the degree of financial stress in the financial system, the Asset Price Index to measure the development of asset price bubbles, the Bank Distress Index to evaluate the possible occurrence of a banking crisis, network analysis to identify major triggers and channels of contagion by measuring financial interconnectedness of banks and corporates, stress testing to measure vulnerability of the banking system's capital adequacy ratio to changes in credit, market and liquidity risk, and an Early Warning System to measure the probability of a currency crisis using indicators from the external, monetary, financial, real, fiscal and global economy.

governing the derivatives activities of banks to allow thrift banks with the authority to issue foreign letters of credit and pay/accept/negotiate import/export drafts/bills of exchange, to act as dealers of deliverable foreign exchange forwards, if they meet certain criteria.

As mentioned in the previous section, a pre-emptive macroprudential measure has been introduced to contain possible formation of asset price bubbles. In May 2014, the BSP approved the adoption of a prudential REST limit on the aggregate real estate exposures of universal/commercial banks and thrift banks, on a solo and consolidated basis. The REST limit combines a macroprudential overlay of a severe stress test scenario with the principle of loss absorbency through minimum capital ratio thresholds, and a heightened supervisory response.

Fifth, the observation that non-financial corporations may have increased their external borrowing implies that the BSP may need to strengthen the measurement of the magnitude and dimension, as well as monitoring of the source and destination, of capital flows data and the development of a formal vulnerability and risk framework to cope with the potential financial disruptions that could stem from significant and volatile debt flows. These measures are relevant in the design of appropriate monetary and macroprudential policy. In particular, a comprehensive analysis of the channels through which a foreign affiliate of a non-financial corporation could transfer funds from its home country to the Philippines, after having obtained funds abroad, may be important. It may be noted that in some studies, these debt flows are largely driven by financial operations rather than real sector activities, and hence could give rise to financial stability concerns (Avdjiev et al (2014)).

5. Summary of findings and insights

This study examines the impact of increasing financial intermediation in the Philippines on monetary policy transmission. Financial developments in the Philippines in recent years have reflected the BSP's efforts to improve financial depth, breadth and access amidst surges in capital flows, especially in the aftermath of the global financial crisis. This paper maintains that the formulation of monetary policy and macroprudential policy will have to consider more carefully the linkage with financial system and other financial shocks that come from within and outside the country. The effectiveness of monetary policy in influencing economic activity and inflation becomes crucial as it ultimately depends on the various financial developments and shocks that can potentially change the way monetary policy is transmitted through the financial system.

By estimating the nature of monetary policy pass-through and influence of monetary policy changes on outstanding bank credit, this study finds that, in general, the monetary policy transmission has been stronger – in terms of both immediate and long-run pass-through – and faster – in terms of the speed of adjustment to long-run relationships – especially during the inflation targeting period. These findings imply that, in general, monetary policy has become efficient in influencing the cost of funds amidst streamlining of the banks and greater banking convenience.

Meanwhile, the results of our rolling regression further reinforce the monetary policy pass-through estimates. Broadly, the results show that pass-through and speed of adjustment for longer-term time deposit rates, Treasury bill rates and Treasury bond rates have become stronger prior to the GFC in 2008 and in 2012 following surges in capital flows. However, there was a general decline in the immediate pass-through for savings deposits and bank lending rates starting in 2012. The latter finding seems to imply that the impact of the cut in the BSP policy rate by 100 basis points in 2012 and lower inflation expectations on savings and bank lending rates may have affected the immediate monetary policy pass-through. When inflation and growth are considered, policy rate changes continue to be a significant driver of overall bank credit.

Moreover, the paper yields significant insights. There appears to be some disconnect between monetary policy changes and the bank lending rate during the IT period, and banks seem to have shifted to the SDA rate as an alternative benchmark for pricing loans. Another important finding is that monetary policy changes directly feed into longer-term Treasury bond rates. To the extent that Treasury bonds are largely influenced by global factors, the conduct of monetary policy becomes more challenging. This is highlighted by the fact that, based on recent data, non-financial corporations may have increased their external borrowing.

All in all, the changing role of financial intermediaries in monetary transmission underscores the close interaction between monetary and financial stability. The impact of such changes in financial intermediation on monetary policy can be seen as relevant in the future. To the extent that the bulk of assets has found its way back to banks' balance sheets, the role of banks in the transmission of monetary impulses to the real sector has to be continuously monitored. Moreover, financial market developments may have changed both the equilibrium policy interest rate and the horizon of relevant forecasts, including inflation. These imply that the strategic and operational aspects of monetary policy will become more challenging in the future.

Appendix A

Interest rate pass-through

Table 1

Variable	Description	Overnight RRP Rate (Policy Rate)					
		1986–2014			2002–2014 (IT period)		
		LRPT	IPT	Speed	LRPT	IPT	Speed
SD	Savings deposit rate	0.39	0.03	-0.08	0.76	0.20	-0.15
TD	Time deposit rate	0.64	0.03	-0.07	1.44	0.20	-0.05
BL	Bank lending rate	0.60	0.04	-0.06	0.96	-0.13	-0.11
91D	91-day T-bill rate	0.77	0.07	-0.07	1.16	0.11	-0.07
364D	364-day T-bill rate	0.78	0.04	-0.02	1.51	0.05	-0.06
5YTB	5-year T-bond rate (Bloomberg, secondary)	1.41	0.56	-0.04	1.60	-0.004	-0.02
10YTB	10-year T-bond rate (Bloomberg, secondary)	1.42	0.44	-0.02	1.64	-0.01	-0.02
Average		0.86	0.17	-0.05	1.30	0.06	-0.06

Variable	Description	Weighted Policy Rate					
		1991–2014			2002–2014 (IT period)		
		LRPT	IPT	Speed	LRPT	IPT	Speed
SD	Savings deposit rate	0.56	0.07	-0.11	0.66	0.24	-0.15
TD	Time deposit rate	0.71	0.09	-0.11	1.23	0.10	-0.06
BL	Bank lending rate	0.67	0.05	-0.10	0.85	-0.04	-0.14
91D	91-day T-bill rate	0.84	0.11	-0.08	1.03	0.29	-0.08
364D	364-day T-bill rate	0.89	0.08	-0.05	1.33	0.23	-0.06
5YTB	5-year T-bond rate (Bloomberg, secondary)	1.34	0.56	-0.04	1.40	0.13	-0.02
10YTB	10-year T-bond rate (Bloomberg, secondary)	1.36	0.42	-0.03	1.45	-0.02	-0.02
Average		0.91	0.20	-0.07	1.14	0.15	-0.08

Note: LRPT = Long-run pass-through; IPT=Immediate pass-through; Speed = Speed of adjustment to long-run impact (taken as absolute). Source of data: Author's estimates.

Bank lending channel

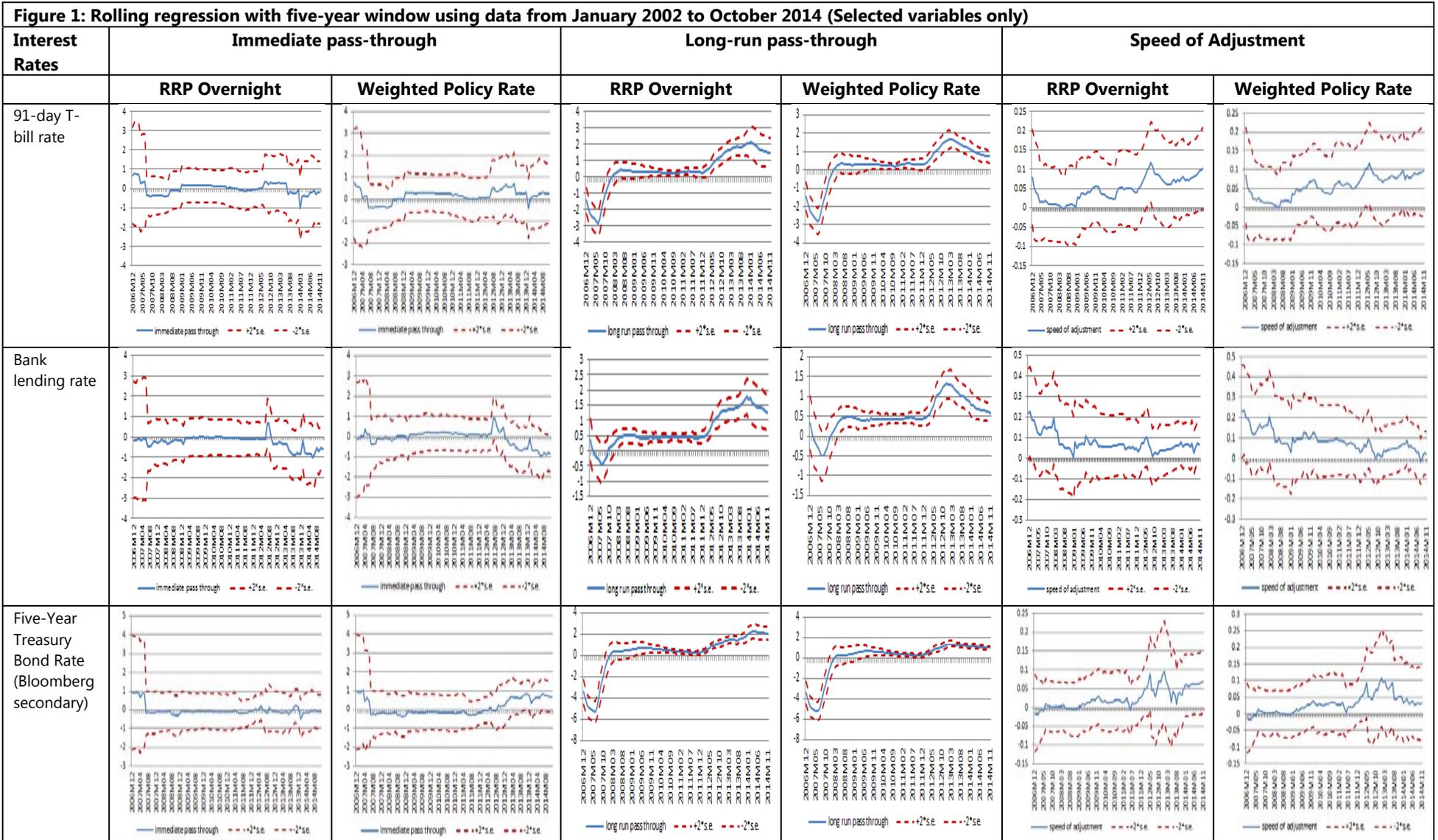
Table 2

Dependent variable: bank lending (Net of RRP) growth rate	Policy rate: overnight RRP rate	Policy rate: weighted policy rate
Constant	0.06 (0.01)***	0.05 (0.01)***
Policy rate	-0.01 (0.00)***	-0.01 (0.00)***
GDP growth	0.21 (0.04)***	0.21 (0.04)***
Inflation	1.10 (0.45)***	1.14 (0.46)***
AR(1)	-0.17 (0.14)	-0.15 (0.14)
Adjusted R ²	0.54	0.53
Durbin-Watson	1.99	1.98
F-statistic	16.20	15.62

The asterisks represent statistical significance (*) at 10%; (**) at 5%; and (***) at 1%. Figures in parentheses are standard errors.

Source of data: Author's estimates.

Appendix B:



Source of data: Author's estimates.

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