

Monetary policy and stock market movement in the Philippines: A Structural Vector Autoregression approach

Deborah Kim S. Sy
School of Economics, De La Salle
University
Manila, Philippines
deborahkimsy@gmail.com

Daniel S. Hofileña
School of Economics, De La Salle
University
Manila, Philippines
danielhofilena@gmail.com

ABSTRACT

As an emerging market in a region vulnerable to political turmoil, natural disasters, and financial contagion, the Philippines is prone to immense capital movements and fierce volatility shocks. The central bank of the Philippines (BSP), under an inflation targeting framework, acts as the harbinger of economic growth and stability. With the advent of financial liberalization, changes in monetary policy ostensibly cause financial instability by nurturing asset price bubbles or massive sell-offs—causing significant contractions and oscillations in economic activity. The study aimed to investigate the transmission mechanism of monetary policy to asset prices, as measured by the movements of the Philippine Stock Exchange Index (PSEi). The multi-sector approach takes into account the banking sector and their risk taking behavior; the foreign sector and their quest for higher returns; and the real economy with the performance of domestic firms. Monthly observations from 2000 to 2010 of multiple variables that best represent each sector were utilized. In order to model these, a Structural Vector Auto Regression (SVAR), which is a modified version of the Vector Auto Regression (VAR), is used to estimate unanticipated structural shocks. Our findings strongly indicate that the monetary authorities in the Philippines react appropriately to shifts in both foreign and domestic economic conditions. Furthermore, the short run effects of policy rates to the index is primarily attributed to myopia – the whimsical and capricious behavior of investors motivated by short-term benefits with little regard for long-term growth – which validates why most long term effects of shocks to the PSEi are zero while short term effects are erratic. The empirical evidence presented in the study can assist policy makers to cope with the strenuous financial environment and regional volatility most especially in newly integrating and industrializing nations.

JEL Classifications: E5

Keywords: Monetary Policy, Stock Market, The Philippines, Monetary Policy transmission mechanism, Structural Vector Auto Regression

INTRODUCTION

As an emerging market, the Philippines experienced persistent stock market volatility, and sudden capital movements throughout the first decade of the 21st century, heightened by economic crises. During the climax of the Global Meltdown of 2008, the Philippine Stock Exchange Index (PSEi) went on a free-fall, crashing by more than 21 percent (Guinigundo, n.d). However, as compared to some of her Western-neighbors, the Philippines remained resilient, giving importance to the intervention of her duly constituted authorities.

Monetary policy is one mechanism by which Central Banks control the money supply of the economy. The framework by which the Central Bank of the Philippines or *Bangko Sentral ng Pilipinas* (BSP) achieves its mandate is through inflation-targeting. The primary instrument of Monetary Policy of the BSP is the manipulation of overnight reverse repurchase (borrowing) rates (BSP Inflation Report, 2014).

Given the vulnerability of the Philippine stock market to changes in domestic and foreign economic conditions, it is vital to understand how it responds to local Monetary Policy. Hence, this paper aims to model this relationship taking into consideration the various sectors of the economy.

The rest of this paper is organized as follows. Under Section 2 is the review of literature. A brief background on the data used are presented in Section 3. Section 4 illustrates the economic modeling while Section 5 paints the picture of the Philippine economy, which includes the empirical findings and analysis. Lastly, the conclusion is found on Section 6.

REVIEW OF RELATED LITERATURE

Existing literature tackling monetary policy and its channels have been conducted in countries such as Venezuela (Coll et al., 2005), Brazil (De Mello & Pisu, 2010) and in countries in Europe (De Bondt, 1998; De Santis & Surico, 2013), Latin America, and Asia (Olivero et al., 2011). As for the Philippines, only few studies examined this phenomenon, mostly revolving around the concept of bank lending (Aban, 2013), interest rate, and exchange rate channels (Tuano-Amador et al., 2009).

The stock market index is the primary indicator of the health of the nation. At the same time, its performance also affects the cost of financing of firms within an economy (Rigobon & Sack, 2003). Previous literature conducted in other countries such as that of Bernanke and Kuttner (2004) pointed out that monetary policy has its most direct and immediate effect on asset price returns during financial crises, mostly through shifts in expected future dividends and excess returns. Bordo and Wheelock (2007) also found that monetary policy affects stock prices in the short-run by altering expectations on dividends, equity premium and discount rate. More importantly, erratic monetary policy can also lead to chaos in the financial markets (Bordo et al., 1995). Yet, the monetary transmission mechanism in the Philippines in relation to the movement of the stock market remains largely unknown.

DATA

In this study, we consider four sectoral blocs - foreign, domestic policy, domestic investment, and domestic economic activity, proxied by ten economic variables.

Table 1. Variables

Bloc	Name	Description
foreign bloc	fint	Foreign interest rate
	dlrem	Cash remittances
domestic bloc (policy)	rrp	Reverse repurchase rates
	inf	Inflation
domestic bloc (investment)	dlloans	Bank loans
	dlinv	Bank investment
domestic bloc (economic activity)	dlsxp	Services export
	dlgxp	Goods export
	dlmfg	Manufacturing index
	dlpsei	Philippine Stock Exchange Index

Sources of Data: Bangko Sentral ng Pilipinas and Philippine Stock Exchange

Foreign Bloc. Foreign interest rate (fint) is proxied by the interest rate of the United States, it being the largest economy at the time. Since there is size asymmetry between the Philippines and the U.S., we regard U.S. interest rate as exogenous given that there is little possibility for a small economy to affect large ones and that the fortune of a small economy is driven by large economies due to globalization (Di Giovanni & Shambaugh, 2007).

Another variable that we include in this bloc is cash remittances (dlrem, in millions of U.S. dollars) from abroad. For in 2010, 9.45 million or around ten percent of the country's total population were migrants and overseas workers. The country also exhibited a drastic growth in remittances in 2001-2010, from \$6.03 billion to \$18.77 billion (National Tax Research Center, 2012). Moreover, the Philippines received five percent of total world remittances amounting to \$21.3 out of \$440.1 billion, she becoming the world's 4th largest recipient of remittances.

Domestic Policy Bloc. In the study, real inflation rate (dlinf) is taken as the rate at which the average price of the goods in the economy increases over time with 2000 as the base year. While a high and irregular inflation may depict price instability, it may also lead to other economic distortions such as uncertainty in the choice of firm investments and a varying income distribution (Blanchard & Johnson, 2013).

Policy rates are formulated with utmost regard for inflation targeting. In the Philippines, the reverse repurchase rate (rrp) is the primary instrument of the BSP to regulate inflation (BSP, 2013). With inflation targeting as the key objective of the BSP, changes in these policy rates are designed to affect inflation through open market operations specifically by selling of government securities to influence money supply (Blanchard & Johnson, 2013).

Domestic Investment Bloc. Bank loans (in million pesos, dlloans) or money that the banking sector lends to the private sector, is one way of generating domestic liquidity in the market. Likewise, it is the primary tool of banks in generating profit. Bank loans are taken as an asset in the balance sheet, comprising 50.67 percent of the value of banks in 2007.

As another measure of domestic investment, we take into account the level of Commercial Bank investment in securities (in million pesos, dlinv). These banks, by definition (Philippine Deposit Insurance Corporation, n.d), are granted powers to act as investment houses, along with a wide variety of banking services such as underwriting and investing in securities.

Domestic Economic Activity. In many studies, Gross Domestic Product (GDP) has been considered as the primary indicator of economic activity. However, GDP data in the Philippines is available quarterly and annually. We opted to use monthly variables as proxies for economic activity in lieu of GDP.

Service Exports. The Philippines, where export of services is the principal engine for economic growth since the mid-1980's, has generated around 16,300 workers in the industry by the end of 2005. In 2008, the ratio of service exports to GDP is 8.58 percent. The export of services was dominated by the business processes outsourcing (BPO) in the 2000's because of a large, educated workforce with strong English language potential and flexibility to other cultures, and the ratio of service sector exports to total service sector revenue was 12 percent in 2009 (Mitra, 2013). It has outperformed most countries in industry growth emerging as the largest BPO center in the world after India (Business Processes Association of the Philippines, 2009-2013). Denomination of the variable services export (dlsxp) is USD.

Goods Exports. The characteristics of exports and global trade are radically changing as the world recovers from the recent global financial crisis. Free trade agreements and international trade negotiations brought about by trade liberalization expand opportunities for growth and potential for larger export markets (Energy Development Corporation, n.d). According to the National Statistics Office (NSO) (n.d), primary goods exports in the country from all throughout the 2000's were manufactures such as electronics, electrical equipment and telecom. Goods export, which is also a component of the balance of payments aside from services export, is in US dollars as well.

Manufacturing Index. The manufacturing sector continues to capture the largest share among all of the 11 economic sectors in the national accounts of the Philippines while accounting for 24 percent of the domestic economy (in constant prices) (Virola, Talento, & Polistico, 2007). The variable used to for manufacturing index (dlmfg) is the total value of production index of key manufacturing enterprises.

The stock market is well-known as the primary ground of capital formation for businesses and at the same time, it serves as a crucial indicator of

the overall wealth generated by the economy of the Philippines as an emerging market. The monthly closing prices from January 3, 2001 and December 1, 2010 of the PSEi were taken on the first Wednesdays of the month or on the previous business day if the Wednesday is a holiday. Being a snapshot of the market's overall condition, the PSEi is composed of the 30 largest and most active common stocks listed at the exchange based on their free float-adjusted market capitalization.

Therefore, the monthly data from 2001 to 2010 in the study comprise of US interest rates, cash remittances abroad, reverse repurchase rates or the policy rates, inflation rates, bank loans, bank investment in securities, service exports, goods exports, manufacturing index and the PSEi closing prices.

PROPOSED ECONOMETRIC METHODOLOGY

First, we specify the underlying VAR model. After testing for the stationarity of the variables and selecting of the optimal lag length using the Selection Criteria, we test for the stability of the underlying VAR model. Next, we identify and specify the long-run restrictions for the SVAR and lastly, we generate the impulse response functions.

Vector Autoregressive (VAR) models are multivariate simultaneous equation models wherein all variables and their lags are regarded as endogenous to examine the relationship among a set of economic variables (Enders, 2010). The term autoregressive is due to the appearance of the lagged value of the dependent variable on the right-hand side and the term vector is due to the fact that we are dealing with a vector of two or more variables (Gujarati & Porter, 2009).

The long run SVAR model has the form:

$$y_t = C e_t$$

In long run models, the constraints are imposed on the elements of C and the free parameters are then estimated. The Plr matrix such that $P_{lr} P_{lr}' = \Sigma$ identifies the structural impulse response functions. $P_{lr} = C$ is identified by the restrictions placed on the parameters in C (Stata Manual, n.d.b).

In a Structural Vector Autoregressive (SVAR) model, restrictions of a particular economic model are incorporated on the contemporaneous relationship among variables as opposed to VAR models which are being criticized as being devoid of economic content (Enders, 2010). In other words, SVAR intends to utilize economic theory to recover structural innovations from the residuals in a VAR.

In order to exactly identify the structural model from an estimated VAR, it is necessary to impose at least $n(n-1)/2$ restrictions on the structural model (Enders, 2010). However, in an event that the constraints are not independent because of its construction or the data itself, the number of constraints may exceed the required number of restrictions that results to over-identification (Amisano & Giannini, 1997).

To generate sensible economic inferences through several time periods, we need stochastic processes that are stationary that implies a constant mean and variance over time and the covariance between the time periods depends only on

the lag between these periods (Gujarati & Porter, 2009). In order to test for stationarity, we use the Augmented Dickey-Fuller (ADF) test on the raw data. Only inflation and service exports appear to be stationary. So, we take the normalized returns of some selected variables. After transformation, all variables are stationary.

A lag order of three is used even though the VAR lag selection criterion points out a lag order of two because of the inconsiderable difference of 0.1^{e-22} between the values for the Factor Prediction Error (FPE) for lags two and three, and theoretically, two months is too short for economic shocks to take effect. In reference with the Federal Reserve Bank of San Francisco (2002), changes in monetary policy normally take effect on the economy with a lag between three quarters to two years.

The Eigen-value of the test for stability of the VAR model shows a value of .9809. Hence, the VAR model is stable.

The C matrix is the matrix where we impose the restrictions upon the contemporaneous and lagged effects of the error terms for the SVAR.

Table 2. C Matrix

	fint	dlrem	rrp	inf	dllloans	dlsxp	dlgxp	dlimfg	dlinv	dlpsei
fint	.	0	0	0	0	0	0	0	0	0
dlrem	.	.	0	0	0	0	0	0	0	0
rrp	.	0	.	.	0	.	0	.	0	0
inf	0	0	.	.	0	0	0	.	0	0
dllloans	.	.	.	0	.	0	.	0	0	0
dlsxp	0	0	.	0	.	.	0	0	0	0
dlgxp	.	0	0	.	0	0	.	.	0	0
dlimfg	0	.	.	0	.	.	.	.	0	0
dlinv	.	.	.	0	0	.	0	.	.	0
dlpsei	.	.	.	.	.	.	.	.	.	.

In the matrix, the rows are the response variables, and the columns are the impulse variables. If the coefficients are zero, this means that we restrict the column variables to not have an effect on the row variables.

To avoid simultaneity and feedback effect problems, the variable dlpsei is deemed to have no effect on any other variables, and is regarded as a truly endogenous. On the other hand, fint is regarded as an exogenous variable by economic theory.

To confirm our a-priori expectations and to provide empirical support, we checked for causality using the Vargranger test. It is a test where we regress the dependent variable on its own lagged values and on lagged values of the independent variable to see if the variable granger-causes the other (Stata Manual, n.d.a). Aside from a few results in the test that were a-theoretic as in the case of the Philippines, we found that our matrix is consistent.

PAINTING THE PICTURE OF THE PHILIPPINE ECONOMY

As defined by Gujarati & Porter (2009), impulse response functions trace out the response of the dependent variable to shocks in the error terms in VAR systems

for several time periods in the future. This section shows the various impulse response functions obtained from the SVAR.

How reverse repurchase rates react to shocks in the foreign interest rates.

As said by BSP Governor Amando Tetangco Jr (February 2, 2014), the movement of the US Federal Reserve is one of a number of factors BSP authorities consider in their overall analysis. We are a small open economy. Therefore, a change in foreign monetary policy rates influence the outlook for domestic inflation and growth mainly due to movements of capital.

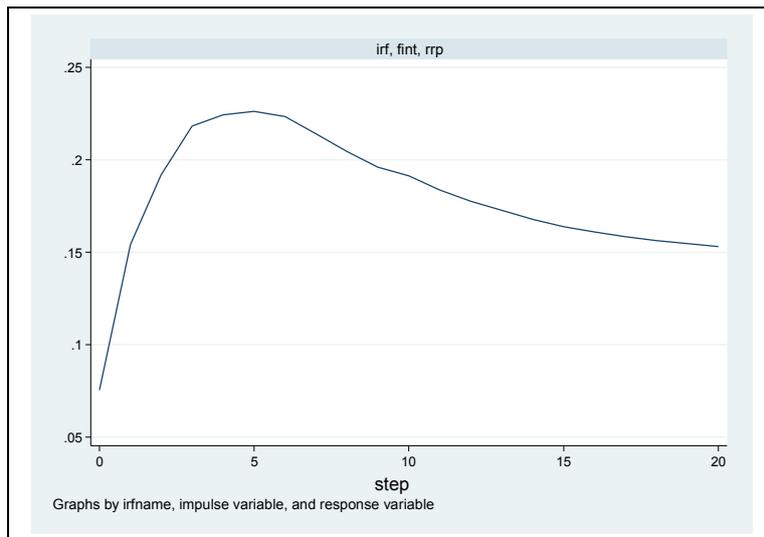


Figure 1. Foreign Interest Rate to Reverse Repurchase Rate IRF

A few years ago, while Federal Reserve tapering sparked fears in emerging markets, investors reacted by pulling out their capital. They began moving capital from the United States to other emerging markets such as Philippines, which brought inflationary pressures. The BSP, in turn, stabilized the inflows by keeping policy rates high in the first few periods.

How reverse repurchase rates react to shocks in inflation.

A sudden spike in inflation is a trigger for monetary authorities to jack up the key policy rates, as seen at the contemporaneous response. The BSP’s main objective is to regulate inflation. Hence, they respond with strong policy actions to rein in inflation expectations as well as pre-empt potential second-round effects as previous monetary responses continued to work their way through the economy (BSP, 2014).

In January and February of 2007, there is a considerable drop of 23.08 percent in the inflation rate, but the BSP did not change its policy rates because the inflation rate at the period is 3.4 percent and is within their target of 4 percent. However, as inflation continued to rise to 6.6 percent in June and to 7.5 percent in September of 2008, the BSP reacted accordingly by increasing the policy rates by 25 basis points in both periods because the rates have already breached the target of 4.0 percent ± 1.0 percent for 2008. Furthermore, the average change in the reverse repurchase rate is 0.0104 percent or 1 basis point

from 2001-2010. This suggests that BSP responds with a sharp RRP hike to curb inflation.

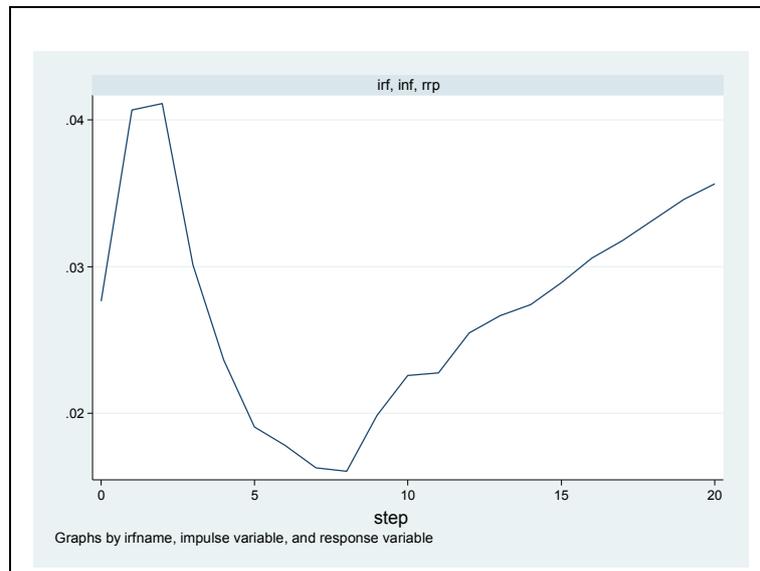


Figure 2. Inflation to Reverse Repurchase Rate IRF

The sharp decline indicates that the BSP still allows for growth due to excessive demand in the economy as long as inflation normalizes and falls well-within the target policy rates.

How inflation react to shocks in the reverse repurchase rates.

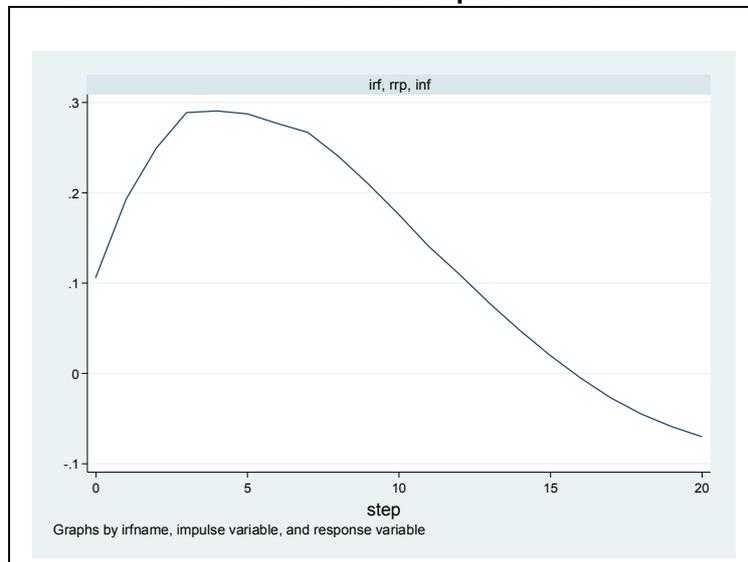


Figure 3. Reverse Repurchase Rate to Inflation IRF

The impact of the policy rate is seen after 16 months where inflation starts to lie on the negative quadrant. In other words, there exists a lag effect in which the monetary stance is able to affect the economy through inflation. This is in line with the findings by Bayangos (2010) that describes the relationship of the

Philippine CPI to tightening. According to the study, the reaction fully takes effect after five quarters and will reach its peak after eight quarters.

Also, the upward spike of the policy rate in the impulse response function (Figure 3) exhibits procyclicality which is what inflation targeting has been doing in the case of supply shocks. Even though the nominal target by a central bank creates unnecessary procyclicality into the monetary mechanism, it is still better to choose a nominal anchor that are accommodating shocks rather than exacerbating them (Frankel, 2011).

How bank investment in securities reacts to shocks in foreign interest rates.

At least five in the top ten negative returns of the PSEi tabulated by Hofileña and Tomaliwan (2014) are within the our time period while three fell within the period of the Global Financial Crisis.

Table 3. Top Ten Negative Returns of the PSEi

Date	Returns	Date
Wednesday, October 29, 2008	-15.2317	Investors started to dump stocks as they await results of U.S. election and 3 rd quarter earnings.
Wednesday, August 12, 1998	-14.6089	President Estrada was warned of impeachment, and fears about a weakening yen and yuan started to brew.
Wednesday, September 3, 1997	-12.8450	Bank interest rates hit a 5-year high.
Wednesday, June 17, 1998	-10.6395	Fears of a weakening yen started. Peso catches up with the currencies that weakened last Friday.
Wednesday, March 2, 1994	-10.6267	There are fears of a 20 percent withholding tax on local T-bills.
Wednesday, October 8, 2008	-10.4829	There are worries on how the U.S. recession will affect the world. U.S. congress fails to approve a rescue plan.
Wednesday, September 17, 2008	-9.9470	Investors dump U.S. stocks. There are fears that AIG will fail.
Wednesday, February 28, 2007	-9.9432	President Arroyo was linked directly to the ZTE scandal. Investors await U.S. economic data.
Wednesday, March 1, 2000	-9.6992	There are impending U.S. interest rate hikes this month. Asian currencies are weakened.
Wednesday, May 24, 2006	-9.6310	There are worries about interest rate hikes and profit-taking by investors.

Figure 4 depicts the buy-low and sell-high risk taking attitude of domestic banks. When there are large negative returns, associated with bad news at that time, banks reach their investment peaks during that period as highlighted by the red boxes. We can say that banks are risk-takers and are seeking long term profits. They buy during market downturns to sell during upswings.

Contractionary monetary policy abroad is a sign of a slowing global economy. During periods of crisis, fears are heightened which induce capital flight that brings down the stock market. As a result, domestic banks then invest to take advantage of cheap capital.

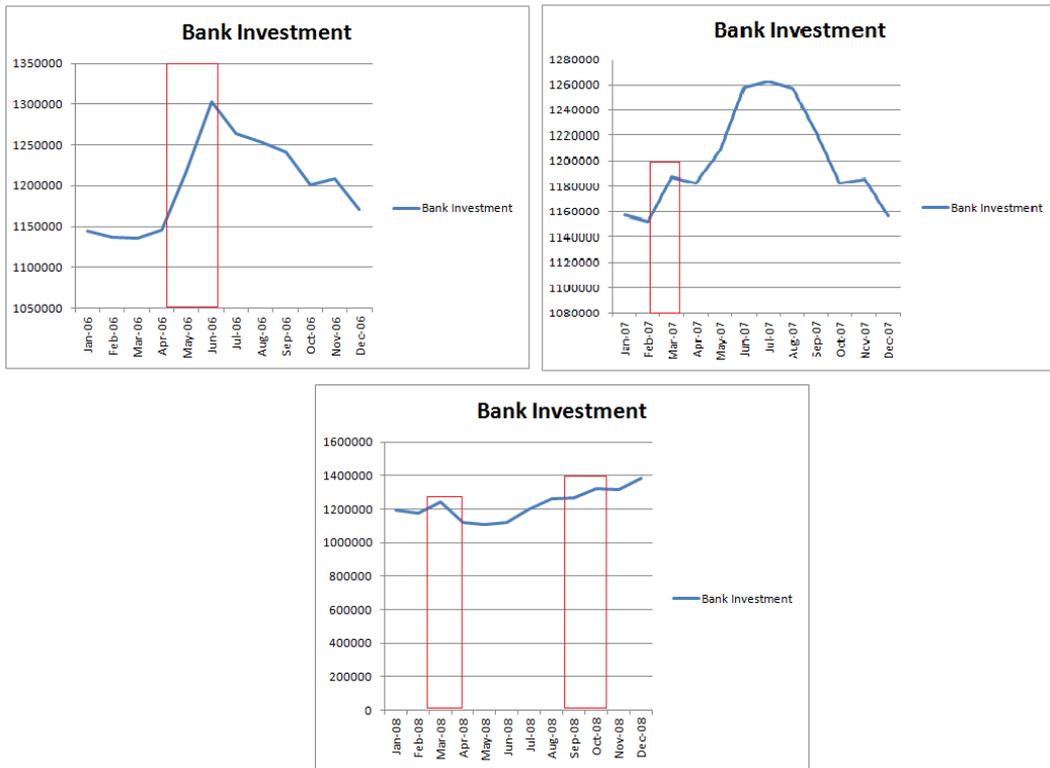


Figure 4. Bank Investment in Securities Time Series Plot

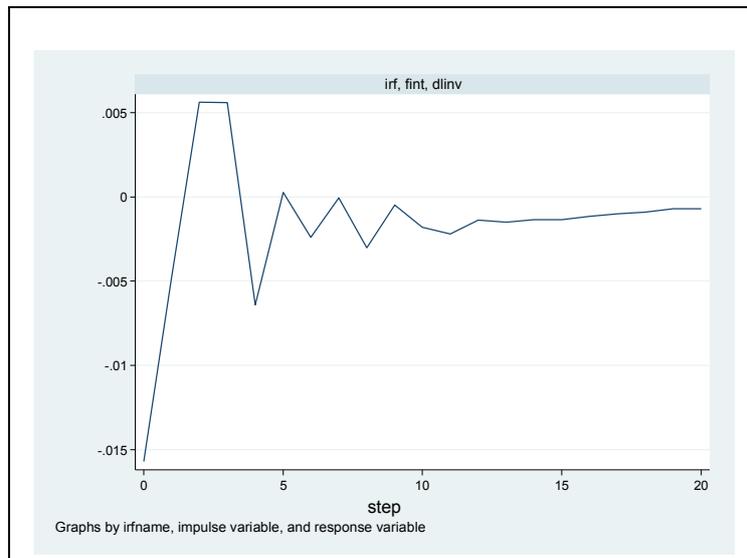


Figure 5. Foreign Interest Rate to Bank Investment in Securities IRF

How bank investment in securities react to shocks in remittances.

The Pairwise coefficient of correlation of 89.50 percent of bank investment in securities and bank loans suggests strong comovements between them. The limited assets of the banking sector may imply adjustments of banks to temporary surge in demand for loans as seen in temporary decline in securities investments.

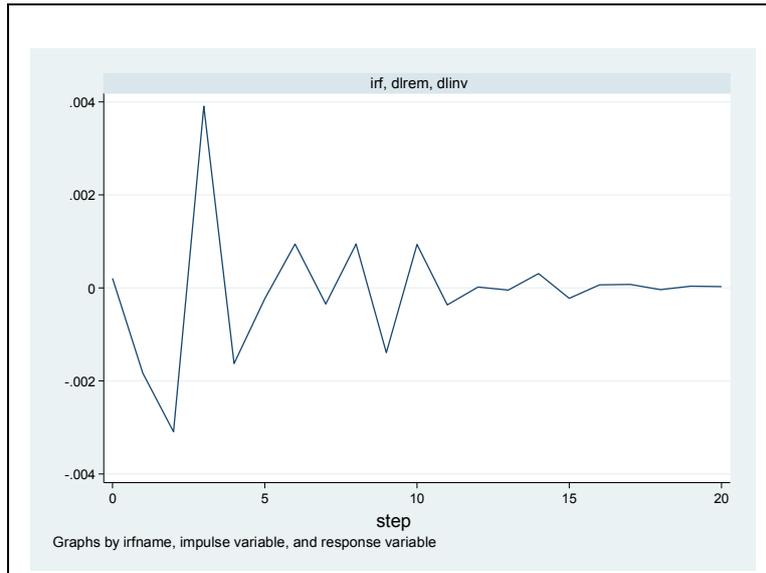


Figure 6. Remittances to Bank Investment in Securities IRF

However, as it can be seen from the Figure 7, it is clear that banks generally tend to increase loans side-by-side with portfolio investments which are indicators that they are taking advantage of favorable economic conditions.

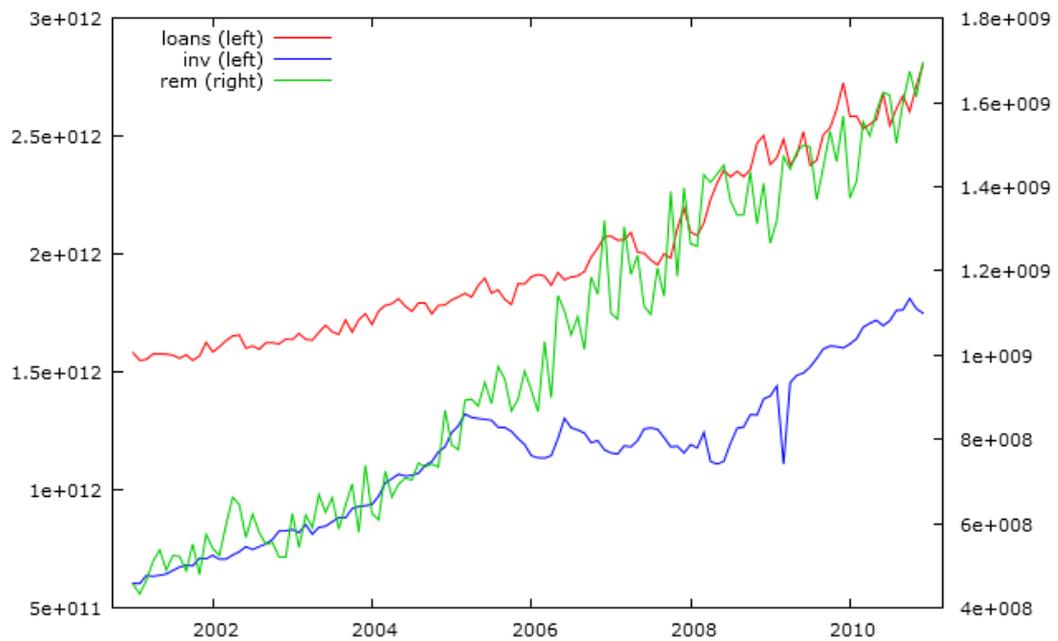


Figure 7. Bank Loans, Bank Investment in Securities and Remittances Time Series Plot

How bank investment in securities react to shocks in the reverse repurchase rates.

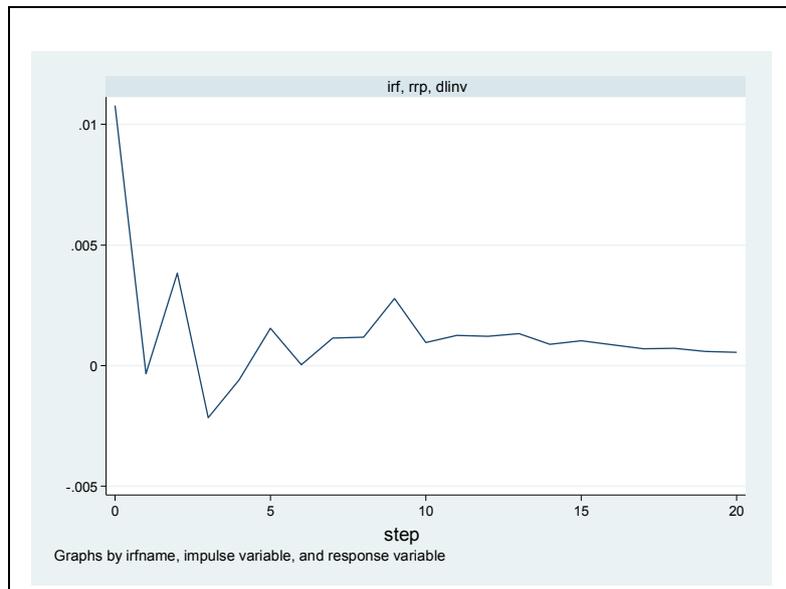


Figure 8. Reverse Repurchase Rate to Bank Investment in Securities IRF

High interest rates caused by a contractionary monetary policy stance make bank investment in securities more costly because of the corresponding decrease in their profit margins. The decrease in the spread reflects less profit and discourages domestic investment in securities. It dampens domestic investment altogether.

How Philippine Stock Exchange Index reacts to foreign interest rates.

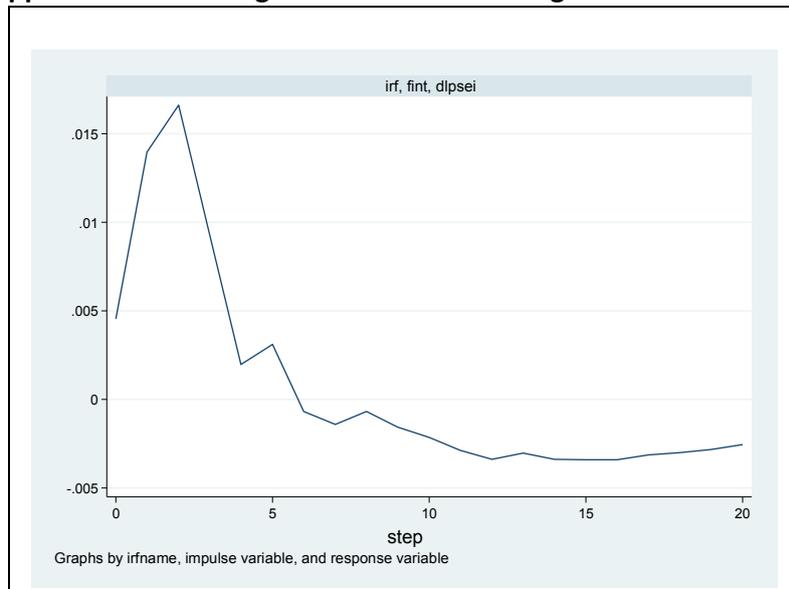


Figure 9. Foreign Interest Rate to Philippine Stock Exchange Index IRF

After the bottom out in 2008, stock markets in Asia started an unprecedented run that saw the rise of emerging markets such as the Philippines

and Indonesia. These emerging markets had become choice destinations for investments looking for higher yields given the uncertainties in most developed markets (Crisostomo, Padilla & Visda, 2013).

Having more information about the financial specifics of the country, domestic investors are more prone to take on risks rather than foreign investors in times of financial distress.

To support this, the local-foreign value turnover ratio from 1998 to 2012 shows that during the Asian and Global financial crisis, the foreign ratio is declining which means that the local trading activity in the country is strengthening.

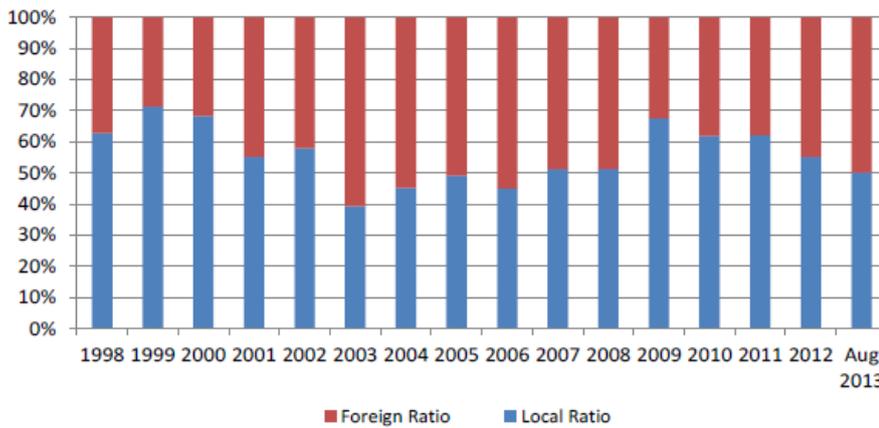


Figure 10. Local Foreign Turnover Ratio 1998-2012 in %

Source: PSE Trading Participants’ Ranking Reports

Moreover, when a large economy such as the U.S. slows down, there is a risk of contagion to other countries. This phenomenon is described as coupling of economies and is caused by globalization and partial integration of economies due to international trade and free capital flows.

At the same time, it is well recognised that capital inflows help relax the financing constraint of the domestic economy. Thus, rather than discourage inflows altogether, authorities generally undertake measures to attract direct investments and other long-term capital flows (Gonzalez, 2008). This may also explain the positive shock to the index when foreign interest rates go up.

How Philippine Stock Exchange Index reacts to shocks in remittances.

The increase in the domestic investment can be related indirectly to seasonality where high remittances and more loans are available during the Christmas season. During such season, aggregate demand of the economy is higher which leads to the increase in profitability of private firms. Hence, these are reflected in the surge of the value of the firm.

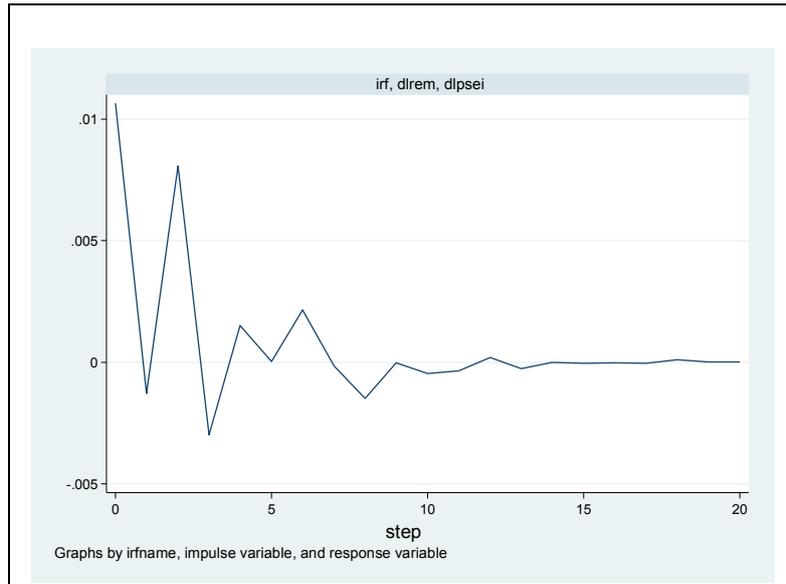


Figure 11. Remittances to Philippine Stock Exchange Index IRF

How Philippine Stock Exchange Index reacts to shocks in the reverse repurchase rates.

Contractionary monetary policy sharply decreases the index to the negative quadrant initially but the effect dies down after the succeeding periods. The Philippines being a small open economy with little capital control due to financial liberalization is very sensitive to movements in policy rates. This is an occurrence commonly called as spooks or the fact that investors are jittery especially with their money on the onset of monetary policy decision-making. The fact that policy rates have an effect on the index in the short run may reflect the myopic behavior of investors where these investors only see the short run profits rather than the long run gains in venturing in the stock market.

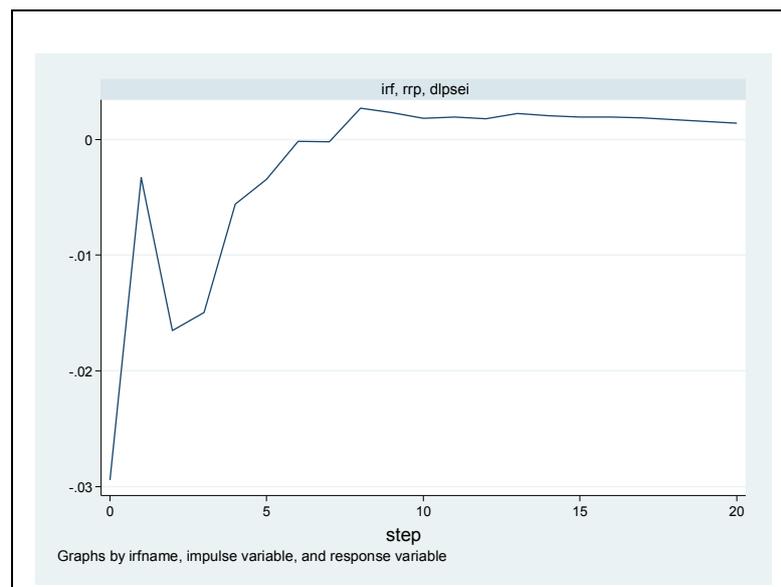


Figure 12. Reverse Repurchase Rate to Philippine Stock Exchange Index IRF

This is in line with Kochar & David (1996) where investors value short term gains as they may lack access to firm-specific information to evaluate the potential of the firm so they only look at current earnings which is easily measurable. Therefore, they primarily focus on turning over their portfolio to capitalize on all the possible short-term profit they see (Shleifer & Vishny, 1990).

CONCLUSION

Our findings strongly indicate that the monetary authorities in the Philippines respond aptly to shifts in both foreign and domestic economic conditions. The Bangko Sentral ng Pilipinas is able to fulfill its objective of price stability throughout the years.

The credibility of the BSP plays an important role on the stability of the stock index since a contractionary monetary stance abroad will trigger 'spooks' and capital flight towards safer havens. This finding is consistent with the fact that our time period encompasses the fullness of the Global Financial Crisis, the advent of the Euro-zone worries, and the aftermath of the Asian Financial Crisis. During this period, investors are jittery and are extremely sensitive to the financial climate.

In case of sudden economic downturns, the outflow of 'Hot Money' is counter-balanced by investment in securities of domestic financial institutions. The buy-low sell-high attitude is consistent with profit-seeking behavior. This is also an indicator of strong confidence of domestic investors even in times of global turmoil. Furthermore, the Philippine banking system has remained resilient during the 2008 Meltdown due to its limited exposure to securitized assets and a strong supervisory and regulatory body (Guinigundo, n.d).

Moreover, we find that the short run effects of policy rates to the index is mainly attributed to myopia – the whimsical and capricious behavior of investors – motivated by short-term gains with little regard for long-term growth. This justifies why most long-term effects to the PSEi are zero while short-term effects of variable shocks are erratic. This is consistent with the characteristics of emerging economies especially with financial liberalization of the Philippines in the late 90s, which abolished capital controls and eased the flow of capital.

REFERENCES

- Aban, M. (2013). Transmission of monetary policy through the bank lending channel in the Philippines. *International Journal of Trade, Economics and Finance*, 4(1), 37-42.
- Amisano G. & Giannini, C. (1997). *Topics in structural VAR econometrics 2nd edition*. Berlin: Springer.
- Mitra, R. (2013). Leveraging service sector growth in the Philippines. *ADB Economics Working Paper Series*. Retrieved <http://www.adb.org/sites/default/files/publication/30385/ewp-366.pdf>
- Bangko Sentral ng Pilipinas. (2013). Monetary policy. Retrieved from <http://www.bsp.gov.ph/monetary/overview.asp>
- Bangko Sentral ng Pilipinas. (2014). Inflation Report. Retrieved from

- <http://www.bsp.gov.ph/publications/media.asp?id=3546>
- Bayangos, V. (2010). Does the bank credit channel matter in the Philippines? Retrieved from Bank for International Settlements <http://www.bis.org/repofficepubl/arpresearch/201003.12.pdf>
- Bernanke, B. & Kuttner, K. (2004). What explains the stock market's reaction to federal reserve policy? Retrieved from Federal Reserve <http://www.federalreserve.gov/pubs/feds/2004/200416/200416pap.pdf>
- Blanchard, O. & Johnson, D. (2013). *Macroeconomics 6th edition*. New Jersey, NJ: Prentice Hall.
- Bordo, M. & Wheelock, D. (2007). Stock market booms and monetary policy in the twentieth century. *Federal Reserve Bank of St. Louis Review*, 89(2), 91-122.
- Bordo, M., Choudhri, E. & Schwartz, A. (1995). Could stable money have averted the great contraction? *Economic Inquiry*, 33, 484-505.
- Business Processes Association of the Philippines (BPAP). (2009-2013). Breakthroughs newsletter (various issues). Retrieved from <http://www.bpap.org>
- Coll, A., Torres, E. & Santander, E. (2005). Bank lending channel in Venezuela: Evidence from bank level data. *Banco Central de Venezuela Publications*. Retrieved from <http://www.cemla.org/red/papers2005/redx-ve-arreaza.pdf>
- Crisostomo, R., Padilla, S. & Visda, M. (2013). Philippine Stock Market in perspective. Retrieved from http://www.nscb.gov.ph/ncs/12thncs/papers/INVITED/IPS-21%20Finance%20Statistics/IPS1_3_Philippine%20Stock%20Market%20in%20Perspective.pdf
- De Bondt, G. J. (1998). Credit and asymmetric effects of monetary policy in six European countries: An overview, *DNB Staff Reports No. 23*.
- De Mello, L. & Pisu, M. (2010). The bank lending channel of monetary transmission in Brazil: A VECM approach. *The Quarterly Review of Economics and Finance*, 50(1), 50-60.
- De Santis, R. & Surico, P. (2013). Bank lending and monetary transmission in the Euro area. *Economic Policy*, 28(75), 423-457.
- Di Giovanni, J. & Shambaugh, J. (2007). The impact of foreign interest rates on the economy: The role of an exchange rate regime. Retrieved from National Bureau of Economic Research <http://www.nber.org/papers/w13467.pdf>
- Energy Development Corporation (EDC). (n.d). The Philippine Export Development Plan. Retrieved from http://edc.net.ph/downloads/PEDP2011_2013.pdf
- Enders, W. (2010). *Applied econometric time series 3rd edition*. New York: Wiley.
- Fama, E. (1981). Stock Returns, Real Activity, Inflation and Money. *American Economic Review*, 71, 545-65.
- Federal Reserve Bank of San Francisco. (2002). What is the difference between fiscal and monetary policy?. Retrieved from <http://www.frbsf.org/education/publications/doctor-econ/2002/march/fiscal-monetary-policy#fn>
- Frankel, J. (2011). Monetary policy in emerging markets: A survey. Amsterdam:

- Elsevier. Retrieved from http://dash.harvard.edu/bitstream/handle/1/4669671/RWP11-003_Frankel.pdf?sequence=1
- Gonzalez, C. (2008). Capital flows and financial assets in the Philippines: determinants, consequences and challenges for the central bank, *Bank for International Settlements Papers No. 44*. Retrieved from <http://www.bis.org/publ/bppdf/bispap44t.pdf>
- Guinigundo, D. (n.d). The impact of the global financial crisis on the Philippine Financial system - An assessment. *Bank for International Settlements Papers No. 54*. Retrieved from <http://www.bis.org/publ/bppdf/bispap54s.pdf>
- Gujarati, D. & Porter, D. (2009). *Basic econometrics 5th edition*. New York, NY: McGraw-Hill/Irwin.
- Hofileña D. & Tomaliwan, F. (2014). Measuring asymmetric volatility and stock returns in the Philippine Stock Market. Retrieved from http://www.dlsu.edu.ph/conferences/dlsu_research_congress/2014/_pdf/EBM-II-015.pdf
- Kochhar, R. & David, P. (1996). Institutional investors and firm innovation: A test Of competing hypothesis. *Strategic Management Journal*, 17, 17-84.
- National Statistics Office (NSO). (n.d). Retrieved from <http://www.census.gov.ph/>
- National Tax and Research Center. (2012). Profile and taxation of the Philippine Overseas remittance industry. *NTRC Tax Research Journal*, 24.3, 1-19.
- Olivero, M., Li, Y. & Jeon, B. (2011). Consolidation in banking and the lending channel of monetary transmission: evidence from Asia and Latin America. *Journal of International Money and Finance*, 30(6), 1034-1054.
- Philippine Deposit Insurance Corporation (PDIC). (n.d). General banking act. Retrieved from <http://www.pdic.gov.ph/index.php?nid1=10&nid2=4#sec4>
- Rigobon, R. & Sack, B. (2003). Measuring the reaction of monetary policy to the stock market. *The Quarterly Journal of Economics*, 118(2), 639-669.
- Schleifer, A. & Vishny, R. (1990). Equilibrium short horizons of investors and firms. *American Economic Review*, 80, 148-153.
- Stata Corporation. (2009). *Stata 13*. Statistical Software. Texas, TX: Stata Corp LP.
- Stata Manual. (n.d.a). Vargranger. Retrieved from <http://www.stata.com/manuals13/tsvargranger.pdf>
- Stata Manual. (n.d.b). Var svar. Retrieved from <http://www.stata.com/manuals13/tsvarsvar.pdf>
- Tuano-Amador, M., Glindro, E. & Claveria, R. (2009). Some perspectives on the monetary policy transmission mechanisms in the Philippines. *Bangko Sentral Review*, 18-40.
- Virola, R., Talento, R. & Polistico, F. (2007). Understanding the manufacturing sector: The Philippine System of National Accounts (PSNA) and the Monthly Integrated Survey of Selected Industries. Retrieved from National Statistics Coordination Board <http://www.nscb.gov.ph/ncs/10thNCS/papers/invited%20papers/ips-28/ips28-02.pdf>