Macroeconomic Policy for Emerging markets
Lessons from Thailand
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Chapter 8
Monetary policy strategy for long-term growth and stability

1. Introduction

In the process of sustainable economic development, real per capita income must be raised continuously for several decades. Success in economic development can then be observed in rising standards of living and longer life expectancy. Economic growth enhances a government's ability to redistribute income and reduce unemployment. Small differences in growth rates make enormous differences in levels of potential output over a few decades. If the growth rate is maintained at three percent over a decade, income rises by 35 percent. If the growth rate is raised to seven percent, income will double. When seven-percent output growth is continued for three decades, income rises eightfold. The key strategy for long-term development is to keep growth continued for several decades.

How should monetary policy strategy be applied to maintain growth without disruption during internal and external shocks? Monetary policy is the crucial macroeconomic tool employed by central banks to maintain economic growth and price stability. Raising real per capita income requires that inflation must be contained so that interest rates can be kept low. Since inflation is related to interest rates, monetary policy can stimulate capital accumulation by ensuring that investors and savers are rewarded for undertaking risk and saving, respectively. Unstable investment expenditures cause short-term fluctuations in Gross Domestic Product by affecting aggregate demand and its components. Rising investment also generates long-term growth by increasing potential or full-employment national income. Monetary policy can reduce investment fluctuation by controlling the cost and quantity of credit available to investors.

From the early 1960s to 1996, the Thai economy generally experienced low inflation, but high economic growth. Since then, the growth path has been reduced as a result of corrections to macroeconomic imbalances. External and internal shocks have reduced

the long-term growth path, although the pre-crisis level of income was regained within a few years after the 1997 financial crisis.

The Bank of Thailand adopted an inflation-targeting strategy after switching from a fixed exchange rate regime to a managed floating exchange rate system. The core inflation target is set between zero and 3.5 percent, although net benefits from targeting core instead of headline inflation are not clear due to problems with measuring core inflation (Quah and Vahey, 1995). Because of the global recession and a sharp drop in oil prices in 2008, Thailand experienced price deflation in the first half of 2009. Inflation targeting is subject to a real test of its potency.

As the Thai economy was exposed to globalization, capital inflows influenced monetary aggregates. Evidence points to an increasing degree of financial market integration in East Asia (Jeon et al., 2006). As such, monetary policy must take into account the impact of shocks in world money markets. Since foreign portfolio investment affects domestic money supply and exchange rates, monetary aggregates have not increased at the rate corresponding to a stable output growth, which led to the deleterious effect of fluctuations in monetary aggregates.

We will examine the relationship between money supply and output and explore a trade-off relationship between inflation and unemployment. The reaction function of monetary authorities will be investigated. The effectiveness of monetary policy and its degree of autonomy will be discussed. Finally, we provide monetary policy strategy in dealing with asset price bubbles

2. Monetary aggregates and real output

In the absence of GDP monthly data, manufacturing output index was employed to represent economic activity with high-frequency data. Although manufacturing output cannot represent all economic activities, its importance to GDP has increased over time. While the share of agricultural output has declined, the increasing contribution to GDP from the service sector cannot be denied. It is stipulated that activities in the manufacturing sector are related to the GDP contributed to the agricultural and service sectors.

Monthly data from January 1993 to June 2017 are employed to capture the relationship between manufacturing output and monetary aggregates (Figure 1). As a result of a cointegration test indicates, a long-run relationship exists between output and monetary base. To maintain a stable growth path, money supply growth must be kept in line with output growth.

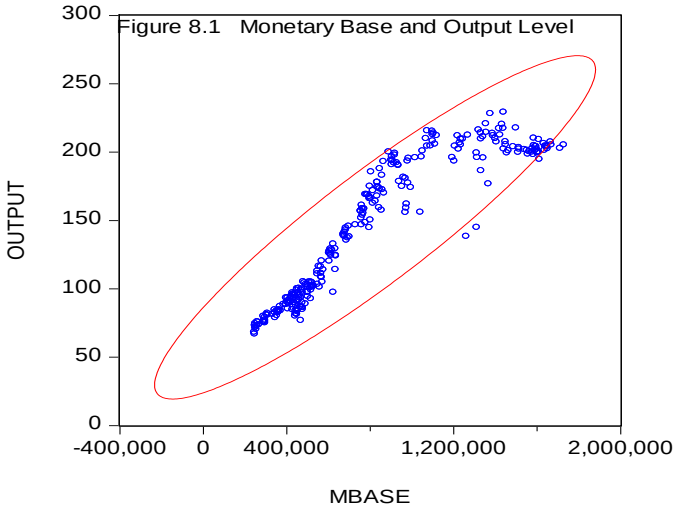

Figure 8. 1 Monetary Base and Output Level: The long-run relationship

The rate of growth of money supply outpaced growth in output during the boom years before the 1997 financial crisis. There was a steep increase in money supply as output expanded from a manufacturing production index (MPI) of 60 to 90. At this time, monetary shocks led to excessive, unsustainable growth of output.

As the Thai economy recovered from the recession of 1997-98, the monetary aggregate and output regained their long-run equilibrium relationship. Since 2006, the Thai economy suffered from internal political upheavals and oil price shocks during which output and money supply drifted away from the equilibrium path again. It was not an excessive boom like the early 1990s, but output contraction since August 2008 and slow growth in money supply (Figure 1). The economy will not soon return to a long-run equilibrium path between money and output.

Following Hodrick and Prescott (1997), we define cyclical movements as the difference between the actual value of the series and the Hodrick-Prescott filter trend of the series. We observe a remarkable positive relationship between the degree of the cyclicality of output and monetary aggregates (broad money supply) in Figure 8.2.

When broad money exceeded its long-run trend, output also expanded at a rate faster than its normal growth path. Similarly, when monetary aggregates contracted below their long-run trend, output growth slowed to beneath its trend. Peaks of monetary growth (lagged five months) were associated with peaks in manufacturing output; the deepest contraction in output synchronized with a trough in monetary cycles. The lead-lag relationship of two variables gives us a clue to the direction of causation.

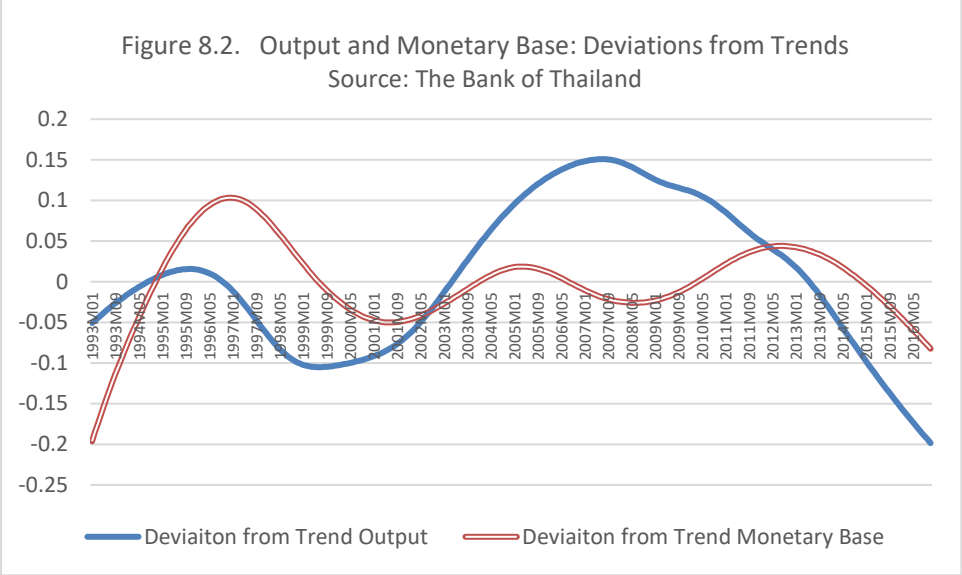

Figure 8. 2 Output and Monetary Base: Deviations from Trends

Since there is a long run relationship in cyclical fluctuations in output and the monetary base, we perform the Granger causality test and report the result in Table 1. Statistical evidence supports the notion that money supply growth affects economic growth. Changes in output do not contain information useful for predicting the future movement of monetary aggregates. However, output growth can be predicted by the growth rate of money supply lagged by two months. A rising income level contributes to higher demand for money. Other forms of financial assets may be used as saving vehicles. Increasing sophistication of the capital market has made bonds and stocks alternative forms of financial assets to be held for investment and saving. Consequently, changes in output have lost their power to predict M2.

Theoretical reasons explain why M2 affects output level. Money balances can be thought of as a factor input in the production function, so an increase in money supply provides working capital to smooth the production process. As the economy is increasingly dominated by manufacturing output, money balances and bank credit become inseparable inputs in the production function. Failure to provide liquidity to the real sector could lead to a fall in output. A credit crunch or capital crunch in the banking sector is always associated with a slowdown of the real sector. In this sense, monetary policy impacts output by affecting supply and demand. The impact of credit contraction would be more severe than when the money supply is not an essential factor of production.

We now turn to the issue of shocks that might originate from the real and monetary sectors. If shocks are defined as actual values and expected values obtained from the long-run trend, output and monetary shocks can be measured by the gap between trends of output and monetary aggregates. Again, we employ the Hodrick-Prescott (HP) Filter trends to extract the cyclical movement of two variables. The second panel in Table 1

produces the Granger causality test between two cyclical movements (the difference between the actual and HP filter trend). The test result shows that output shocks do not Granger cause monetary shocks. The causation runs from monetary shocks to output shocks. We have arrived at a meaningful conclusion on the conduct of monetary policy: Monetary authorities must avoid creating large swings in monetary aggregates because they could lead to output fluctuations.

Accommodating monetary policy or pro-cyclical monetary expansion can propagate booms temporarily as it eventually leads to an overheated economy, requiring both internal and external disequilibrium. Calderon et al. (2004) found the evidence that countries with higher credibility levels can conduct countercyclical macroeconomic policies, while pro-cyclical policies are observed when credibility is weak. Inflation, unsustainable current account deficit, and appreciation of real exchange rates would ensue, leading to output collapse and unemployment. Counter-cyclical monetary policy can be employed to prevent booms or busts through adjustments in monetary aggregates and interest rates.

Since we have established the crucial link and causation running from money supply to real output, we further investigate sources of rapid increases in money supply broadly defined (M2). After 1991, when Thailand accepted the IMF Article VIII, liberalizing capital accounts, the rate of growth of the monetary aggregate gained momentum. The establishment of Bangkok International Banking Facilities (BIBFs) to make Bangkok a regional financial center resulted in huge rapid capital inflows. The influx of foreign borrowing was so massive that it was impossible to sterilize the expansion of the monetary base. Figure 3 shows that net foreign assets increased substantially after capital account liberalization and establishment of the BIBFs. Premature liberalization led to huge rapid capital inflows so that the existing antiquated financial infrastructure was unable to monitor and supervise activities in the financial sector.

The Thai economy was able to proliferate with low inflation in the late 1980s, partly because the monetary base did not grow too fast. Surplus budget mitigated the rise in monetary base as claims on government were negative, due to the amount of public debt reduction. Fiscal surplus helped reduce upward pressure on the monetary base. The bailout of financial institutions before the 1997 financial crisis was reflected in the rising claim on financial institutions. After the collapse in 1998 of 56 finance companies and a bank, the bailout's impact on monetary base level gradually eased.

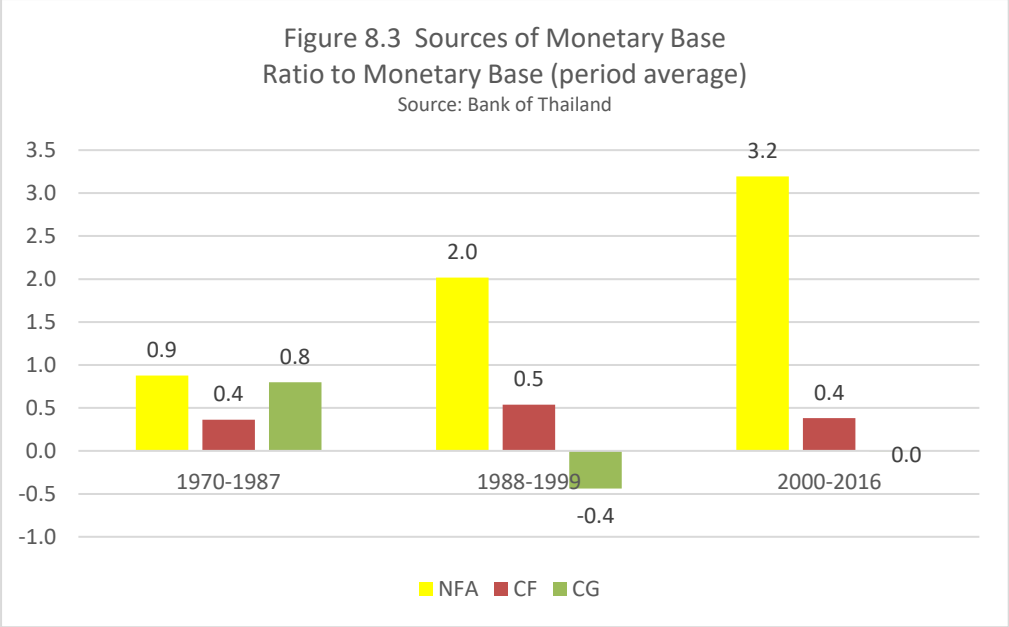

Figure 8. 3 Sources of Monetary Base (Ratio to Monetary Base)

After the 1998 crisis, the BOT's lending to the government and financial institutions declined as the economy returned to its pre-shock growth path. However, as the Bank of Thailand began intervening in foreign exchange markets to prevent baht appreciation, the level of foreign assets relative to the broad money steadily increased. The analysis of monetary policy must consider implications of the exchange rate regime and capital inflows.

3. The Phillips curve

Under the circumstances of a global recession, oil price shocks, and virulent capital flows, how should monetary authorities conduct policy instruments? After baht flotation in July 1997, the new monetary policy strategy was adopted in 2000. The Bank of Thailand announced an inflation target strategy, stipulating the core inflation target between zero and 3.5%. Note that the target was not on headline inflation, which includes the prices of fresh food and energy. Since food and energy prices are subject to uncontrollable factors, the Bank of Thailand opted to focus on core inflation.

The relationship between headline inflation and unemployment is shown in Figure 8. 4. If there is a trade-off between price stability and full employment, monetary expansion can reduce unemployment at the expense of higher price levels. How high is a price must we pay to reduce the unemployment rate? How can the Central Bank strike a balance between growth and price stability? Which policy instruments are available and effective? The effectiveness of inflation targeting can be evaluated from the linkage

between the policy interest rate and commercial banks' lending rates, which would eventually affect investment, price level, and output growth.

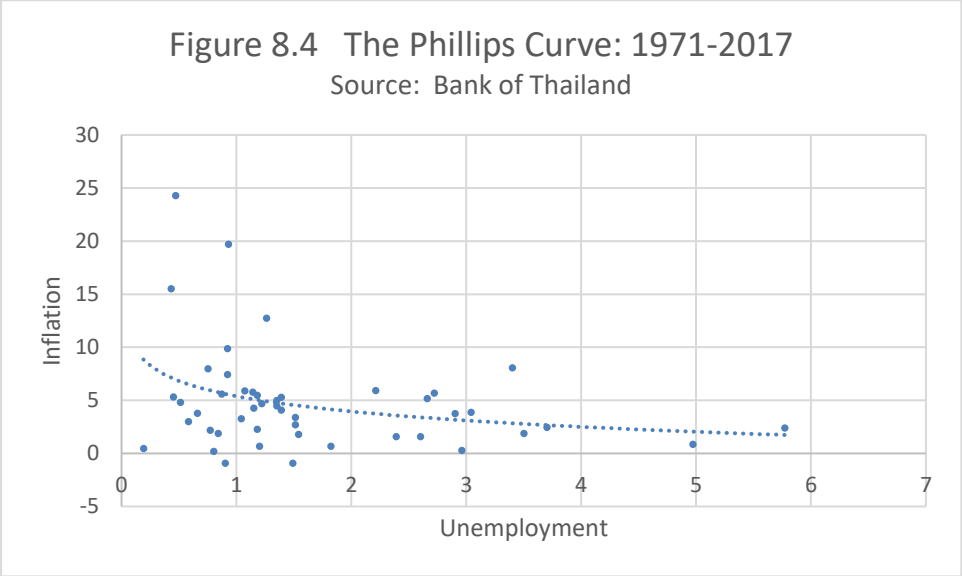

Figure 8. 4 The Phillips Curve: 1971-2017

The Phillips curve depicted in Figure 8.4 exhibits a negative relationship between inflation and unemployment over the past four decades. Employing annual data between 1971 and 2017, we present a statistical relationship between unemployment rate (U) and inflation rate (π). The unemployment rate is negatively related to inflation. Applying Fully Modified Least Squares (FMOLS) to the data, the negative relationship between the two variables is statistically significant. The inflation expectation (π^e) is proxied by the previous period inflation rate. The annual rate of change in the consumer price index is used as the inflation rate.

$$\underset{}{\pi} = \underset{(7.99)}{10.29} - \underset{(4.83)}{1.2}\,U + \underset{(2.87)}{0.22}\,\pi^e - \underset{(6.29)}{0.18}\,Trend$$

Adjusted $R^2 = 0.51$

The estimated coefficient of U_t is negative, implying that there is a trade-off between inflation and unemployment. A decline in unemployment rate results in higher price inflation. The explanatory power of this model is only 50%, suggesting that there are some other factors excluded in the model. For example, supply shocks from oil price hikes and devaluations which cause an upward shift in the Phillips curve. During the span period of 47 years between 1971 and 2017, there have been many structural changes in Thailand's trade structure and exchange rate systems. The Phillips curve has

become flatter as the force of trade reform gives rise to lower prices of imported goods. Hence, the cost of disinflation has been reduced over time.

The cost of maintaining output near full employment level is not high in terms of sacrificing price stability. The model's underlying assumption is adaptive rather than rational expectations. Mankiw and Reiss (2002) criticize the New Keynesian Phillips curve model with rational expectations that disinflation causes a boom and monetary policy quickly impact inflation. In the conventional empirical model presented above, expectations are adaptive, but disinflation can occur by reducing the inflation expectations (π^e) without embarking on consolidating fiscal balance or contracting the money supply. Inflation expectations can be maintained despite a booming economy if some key commodity prices are temporary regulated. The Thai government has many adjustable ceilings on essential consumers goods such as rice, cooking oils and gas. Of course, there is some cost in terms of inefficiency, but it may be worthwhile to trade off with maintaining the growth path close to the potential output. The estimated coefficient of the previous period's inflation rate can be treated as the impact of inflationary expectations on the current inflation rate. Alternatively, it can be thought of like the persistent coefficient of inflation (Pivetta and Reis, 2007). If the persistent coefficient is high, the cost of disinflation will be significant, as it will take longer to reduce inflation. The estimated coefficient of the lagged inflation rate, or the expected inflation rate, is 0.22, suggesting that the cost of reducing the inflation rate not be that high. Nevertheless, the lagged adjustment of expectations helps give some room for the monetary authority to maneuver the inflationary target.

4. Interest rate policy reactions

In the basic Taylor's rule, the determinants of the central bank's interest rate are deviations from the output and an inflation target. The nominal effective exchange rate can be included to make the inflation target more flexible. Ball (2000) proposes the exchange rate be included in the monetary policy reaction function. Chadha et al. (2004) estimated Taylor type rules that include exchange rates for some open economies. The flexible inflation targeting strategy in response to currency movement can be captured by the reduction in the bank rate in response to the baht appreciation. Indeed, the bank rate adjusted to exchange rate changes in addition to output growth and inflation. However, the BoT in the past also resorted to other policy instruments to prevent the baht appreciation such as capital controls and direct intervention in foreign exchange markets.

To examine how the BoT key policy rate reacts to policy goal variables: growth, inflation, and the real exchange rate, we apply Dynamic Least Squares method of estimation to examine the sensitivity of the BoT key policy rate in response to changes in long-term goals variables price level, output, and the real effective exchange rate

(REER) appreciation. With monthly data between 1994 and 2017, the actual and fitted values of the model are shown in Figure 8.5. This policy function can be regarded as a quasi-reaction function of monetary policy. Rather than measuring how the key policy rate reacts to deviations of actual from the target magnitudes, it measures how the key policy rate adjusts to changes in the trends of the price level, output, and the real effective exchange rate. The model tracts well the actual adjustment of the key policy rates in response to changes in the key policy targets.

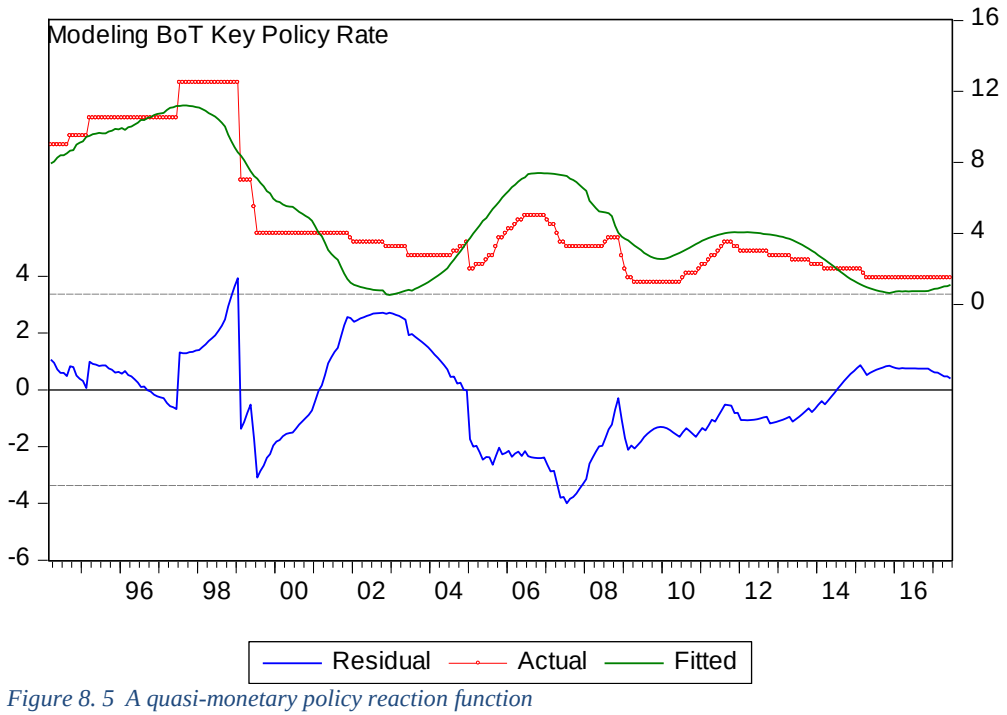

Figure 8. 5 A quasi-monetary policy reaction function

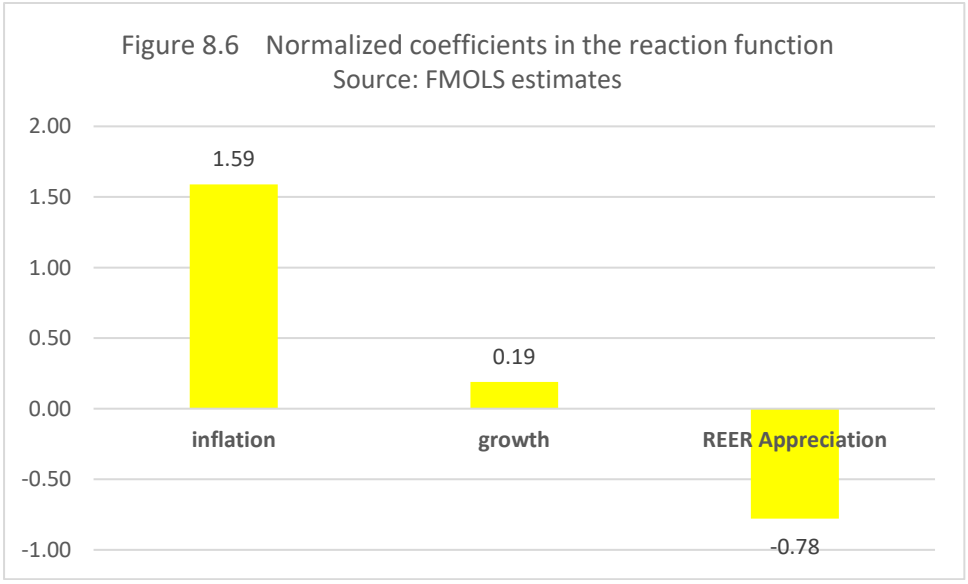

Figure 8. 6 Normalized Coefficients in the Policy Rate Reaction Function

The normalized coefficient of the reaction functions is shown in Figure 8.6. The BoT responded most to inflation (estimated elasticity of the key policy rate was 1.59) This is in line with the rule which stipulates that raising the real interest rate requires the central bank to raise the nominal interest rate faster than the inflation rate. As far as the growth rate is concerned, it seems that the BoT uses countercyclical policy, although the reaction is much smaller than inflation. In other words, the BoT's prime objective is price stability; the reaction parameter is eight times higher than that of output growth. It could be the fear of dampening effects of strong contraction policy on private spending. The last variable included in this flexible inflation targeting is the exchange rate. The regression result indicates that the BoT would lower the interest rate when the real effective exchange rate appreciates. There is such thing as the fear of currency appreciation.

During the fixed exchange rate regime, the country's price anchor is the foreign partner's price level. In the long run, the inflation rate in the country should move in line with inflation in the country to which the currency was pegged. As long as the exchange rate remains fixed, the target of inflation remains the trading partner's inflation rate. Before 2000, the bank rate was adjusted to maintain exchange rate stability. Before the crisis, the interest hike was used to keep the baht from depreciating (Figure 8.6). After the 1998 crisis, the monetary policy stance did not respond to exchange rate movement. We can observe a constant shifting of monetary policy from easing to tightening. In short, since 2000, the bank rate must have adjusted to other targets.

It is a standard practice to describe the stance of monetary policy in terms of short-run nominal interest rate (Clarida et al., 1999). However, Chowdhury and Schabert (2008) find that an assessment of US Federal Reserve policy based on postwar money supply leads to different conclusions about the impact of Fed policy on macroeconomic stability than previous studies indicated.

The bank rate did respond to inflation as anticipated by the inflation targeting strategy employed after floating the currency. Nevertheless, this adopted inflation target strategy is in a flexible form, since the bank rate also responded to other factors: the federal funds rate and the nominal effective exchange rate.

The Bank of Thailand has demonstrated its policy consistency in intervening in the foreign exchange market using, among other means, the interest rate policy, which is akin to the fear of floating syndrome (Calvo and Reinhart, 2002). The root of the problem is the myth that the exchange rate was the primary determinant of trade flows. The world trade volume, or the output effect, has a more significant impact on trade flows than the substitution effect caused by exchange rate changes.

5. Monetary policy effectiveness

We may conjecture that the bank rate is affected by the federal funds rate, because of the openness of the capital accounts in Thailand. In an age of financial globalization, a small country may not be able to carry its monetary policy independently of world market interest rates. The question arises of how long the Bank of Thailand can conduct its monetary policy while ignoring the Federal Reserve Board's decision to adjust federal funds rates.

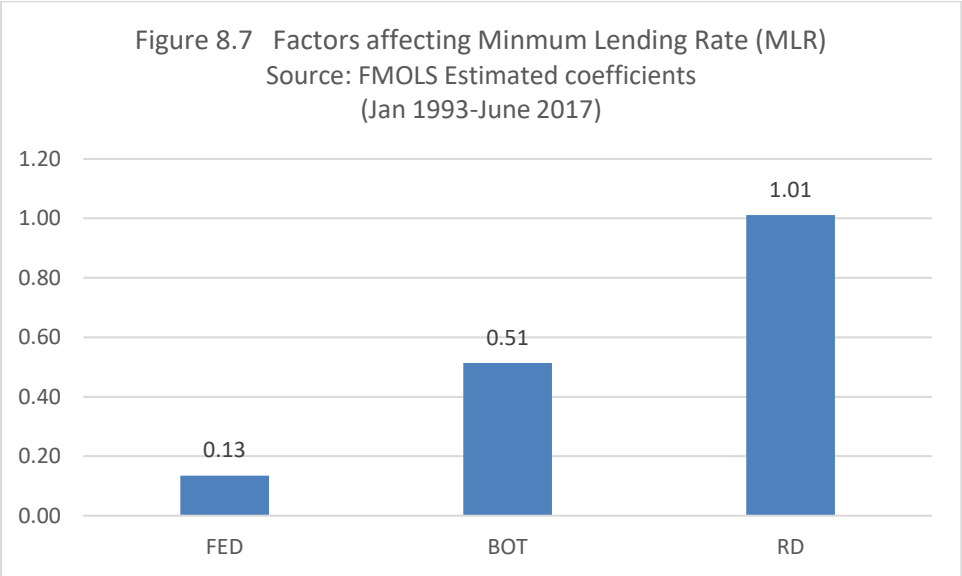

Figure 8. 7 Factors Affecting Minimum Lending Rate (MLR)

The minimum lending rate (MLR) or the prime rate, which commercial banks charge the most credit trustworthy customers respond to the Fed rate hike with the elasticity of 0.13, which is quite small when compared to the impact of the BoT's rate hike. There is a certain degree of capital immobility in Thailand. If capital mobility is perfect, the estimated coefficient should be close to unity. For this reason, there is still some room for Thailand's monetary authorities to maneuver its policy stance. The estimated coefficient of the MLR with respect to the BoT's key policy rate is 0.5. This finding suggests that the central bank can somehow influence the direction of the lending rate but not completely control the magnitude of the commercial lending rates. The last factor included in the equation explaining the MLR is the deposit interest rate (RD). The estimated coefficient of the variable is not significantly different from unity. This empirical finding implies that commercial banks' cost of fund matter most as a determinant of the lending rate (MLR). Because of the unit elasticity, commercial banks can keep the interest gap remain stable to maintain profitability. If the deposit rates fall, commercial banks will reduce lending rate accordingly by the same proportion, while they raise MLR whenever RD goes up. As discussed in Chapter 4, the lack of

competition in the credit markets makes the gap between lending and deposit rates remain stable over time.

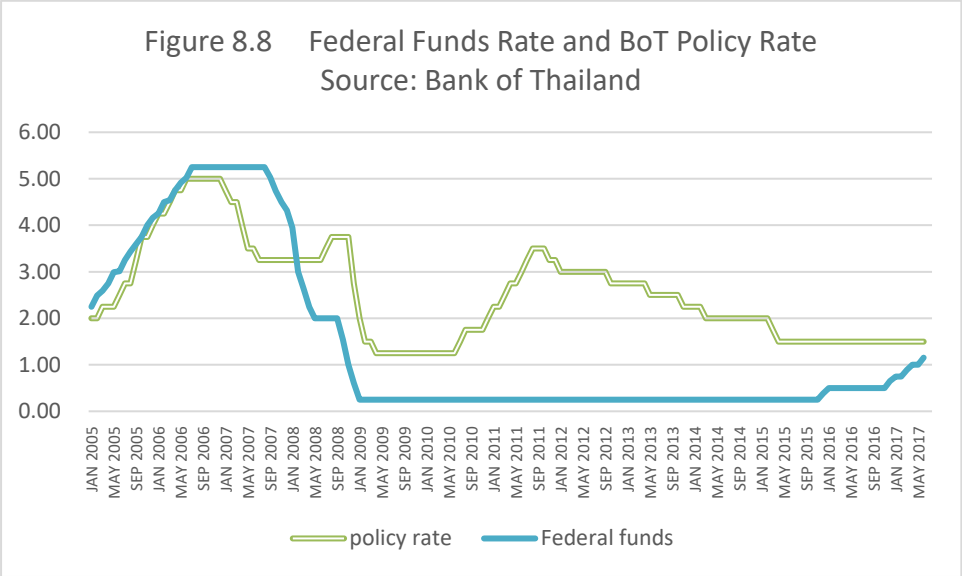

Figure 8. 8 Federal Funds Rate and BoT Policy Rate

Using monthly data between 1978 and 2017, Granger Causality test is conducted to test the hypothesis that the Bank of Thailand can conduct independent monetary policy is rejected. On the other hand, the BoT policy interest rate can be predicted by the federal funds rate five months in advance, but not vice versa. Given that the BOT can temporarily conduct monetary policy when world interest rates change in a different direction, a further question arises regarding the BOT's ability to change commercial bank interest rates. Let us examine the relationship between the key policy rate and the prime lending rate in the USA before further examining the case of Thailand.

Figure 8.9 shows the U.S. prime rate which seems to follow the federal funds rate closely. There is a consistent gap between policy rate and bank lending rates. In the U.S.A., monetary policy instruments can be used to achieve a desirable lending rate. Underlying institutional factors, including industrial concentration and the sophisticated structure of money and capital markets, determine the predictability of policy outcome.

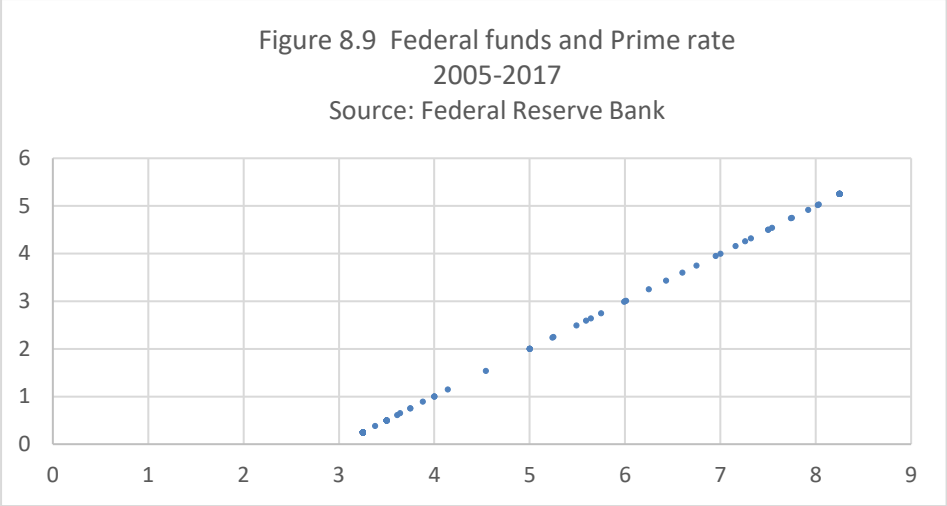

Figure 8. 9 Federal Funds and Prime Rates: 2005-2017

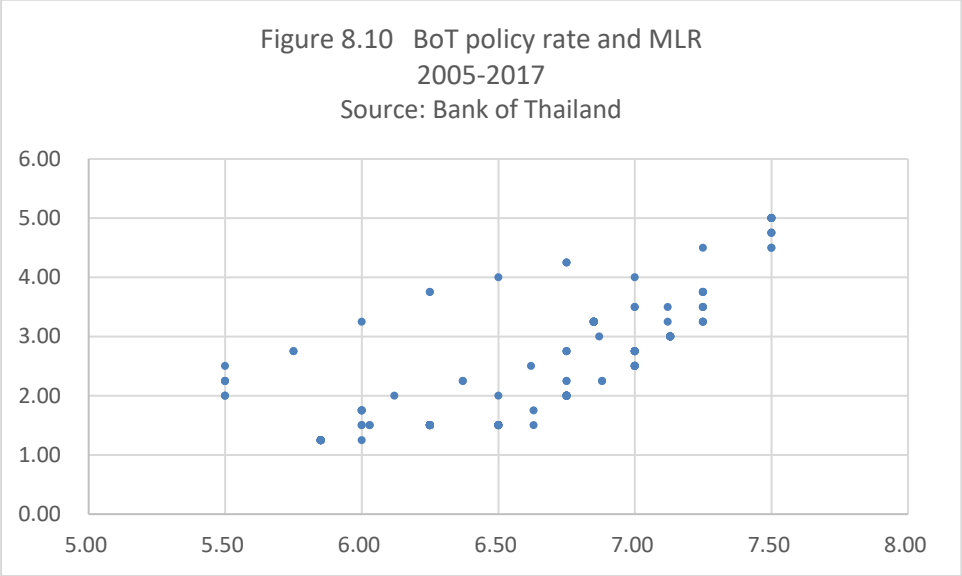

Figure 8. 10 BoT Policy Rate and MLR (2005-2017)

Unlike the Federal funds rate which systematically impacted the prime lending rate of a commercial bank in the USA, the impact of the rate cut in Thailand is unpredictable and inconsistent, as commercial banks refuse to lower interest rates during recessions. High liquidity and rising default risks are used as excuses to maintain commercial bank lending rates. With excess liquidity, cutting the Central Bank lending rate does not encourage other banks to borrow from the Central Bank. The slow reaction of the lending rate to the key policy rate cut is also due to a lack of price competition. The Thai banking industry remains highly concentrated. Thus, monetary policy effectiveness is limited during recessions when the Central Bank seeks to stimulate the economy.

Unsurprisingly, Thai banks in 2008 enjoyed high profits despite a slowdown in lending activity.

During recessions, banks are unwilling to lend, and investors are unwilling to borrow. Investment is also determined by factors other than the cost of borrowing. Credit availability is an essential factor during economic booms since there are many liquidity-constrained investors. Monetary policy effectiveness is enhanced during booms when the Central Bank can control credit availability. Business confidence is no problem during booms because investors are likely to be carried away with irrational exuberance. During slumps, by contrast, business confidence erodes quickly. Despite the Central Bank's low-interest-rate policy, which influences commercial bank lending rate cuts, investors have no confidence in projects likely to fail if they anticipate a future deterioration of demand. For this reason, business confidence must be taken into account when modeling the impact of monetary policy.

The finding from the response functions indicates that inflation inertia is powerful. It is reflected by the long lag impact of price innovations. The impact of a sudden jump in price level peaks in the third month and remains strong, albeit at a slower rate, ten months after the inflation shock. This result is consistent with the estimated coefficient of lagged inflation rate reported earlier. Inflation expectations are difficult to disperse after they begin. Monetary authorities must avoid inflation in the first place.
According to van der Ploeg (2009), the prudent monetary policy could also mean more aggressive reactions of nominal interest rates to inflation and output gaps.

Business confidence impacts inflationary pressure. The confidence variable is represented by the business sentiment index provided by the Bank of Thailand. When an optimistic outlook is widespread, inflationary pressure will build as consumption and capital spending rise. The bank rate may be used to curb inflation. Nevertheless, the impact on price level will not be apparent until five months after implementation. This long lag effect produces some degree of uncertainty about the outcome of monetary policy. The collapse of business confidence has a more powerful impact than any interest rate hike.

An output shock that leads to an excessive supply of manufactured goods can ease inflationary pressure. Expanding manufacturing plants generates more supply, lowering pressure on commodity prices. Positive output and capacity buildup have similar impacts on price levels. Note that the amount of newly registered capital represents the investment variable, which is different from construction investment which tends to put upward pressure on price levels

6. Transmission channels and asset prices

There are various channels through which monetary policy affect the real sector. In the world of the flexible exchange rate, monetary policy would be more effective than fiscal policy because the exchange rate changes in such a way that it intensifies the initial impact of monetary policy. However, the exchange rate channel would not be significant if the central bank tries to minimize the exchange rate movement. Another channel through which monetary policy can exert its impact on the real economy is through interest rate channel and credit availability channel.

We investigate the channel which the BoT can exert its influence on the real sector by estimating the elasticities of consumption and investment with respect to commercial banks' lending interest rate and credit volume. The output level is included in the functions, representing scale effect. Monthly data on manufacturing production index is employed to capture the output effect The BoT provides indexes for both consumption and investment. Employing a double-log form in the estimating equations, we can directly interpret the estimated coefficients, obtained from the FMOLS method of estimation, as the values of FMOLS elasticities. Based on monthly data between 2000 and 2017, the estimated coefficients are shown in Figure 8.11. All variables have expected signs; investment and consumption expenditures increase together with expansion in output and credit, declining when the bank lending rate increases. The estimated output elasticities for consumption and investment are 0.25 and 0.76 respectively. Investment responds to output changes more strongly than consumption. This finding is consistent with the volatile nature of investment spending. Consumption smoothing behavior of household results in more stable consumption behavior than investment, which is more volatile due to fluctuations in business sentiment.

Figure 8.11 Elasticities of Consumption and Investment expenditures (cyclically adjusted)

Source: FMOLS estimates (Jan 2000-June 2017)

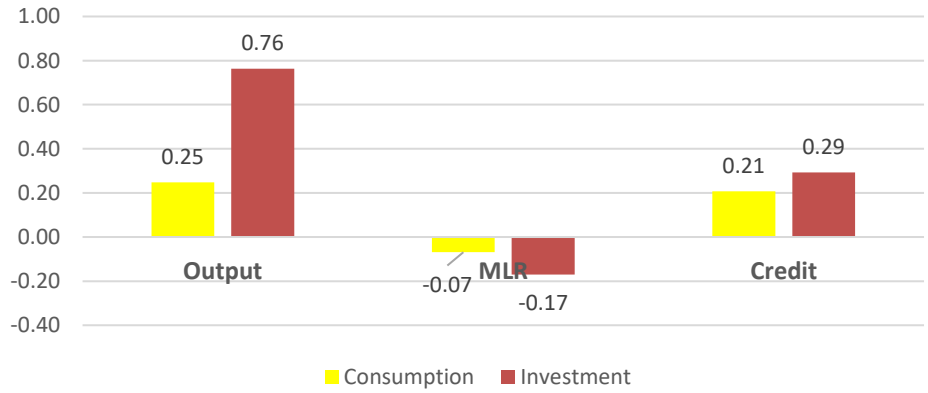

Figure 8. 11 Elasticities of Consumption and Investment (Cyclical Adjusted)

Empirical evidence showed in Figure 8.11 also reveals that both consumption and investment spending respond positively to output expansion and credit extension. An increase in the Minimum Lending Rate (MLR) dampens investment and consumption. Interest elasticity of consumption and investment expenditures are negative, and their absolute values are lower than unity, suggesting that the private aggregate demand function is interest elastic. The response of investment demand is marginally higher than that of consumption demand, which is similar for their responses to credit expansion. An important conclusion from this finding is that credit availability effect is more important than the interest rate channel of monetary policy. Conducting monetary policy through interest rate channel is not as effective as credit channel in both consumption and investment.

During rapid economic expansion, there might be a positive relationship between stock prices and property market activity. Evidence in Taiwan (Chen, 2001), and in Japan (Ito and Iwaisako, 1995) indicate the relationship between asset prices and credit expansion. Through the wealth effect, asset prices can increase the effectiveness of monetary policy used to counteract business fluctuations.

More importantly, another relevant policy question is whether the Bank of Thailand should raise the interest rate to curb activities in asset markets. In a rapidly growing economy, the property sector has high linkages to the real sector through large multiplier effects. The demand for property and securities is related to credit availability. By controlling credit growth, the Central Bank can ultimately influence speculation in asset markets. Also, asset markets are linked to foreign exchange markets through foreign capital inflows. Consequently, the exchange rate is affected by inflows of foreign capital attracted by capital gains in the asset markets. The central bank must choose whether to curb capital inflows or to allow the exchange rate to perform an equilibrating role for external disequilibrium adjustments.

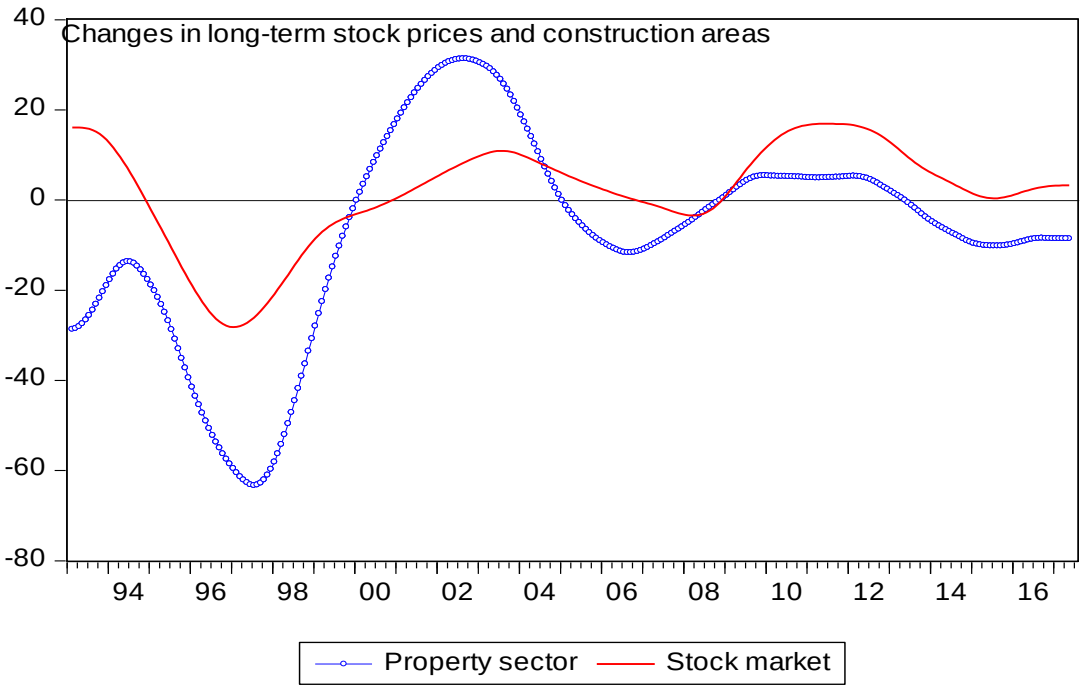

Figure 8. 12 Correlates of stock prices and property sector activity

The size of the stock price bubble can be captured by the percentage deviation from the HP trend line. Similarly, the size of the property bubble can be approximated from the deviation from the HP trend of construction activity, approximated by permitted construction in urban areas.

Using monthly data from January 1993 to December 2017, the Granger Causality test indicates that the SET index (after removing cyclical movements) Granger causes cyclically adjusted construction investment, but not vice versa. We can predict the property bubble from speculative activities in the stock market. In conclusion, measures to curb stock market bubbles are necessary to prevent bubbles in the property sector. This conclusion does not imply that the stock market index should be included in the monetary policy reaction functions. Selective control measures may be used directly to stamp out speculative lending in the stock market[i].

There is also a question regarding where and when the bubble started. The lead-lag relationship between the two bubbles can shed light on measures to prevent bursting asset bubbles. Speculation happens with a mechanism akin to Ponzi finance where net assets decline with borrowing to finance the acquisition of assets with rising prices. Therefore, extending credit into these sectors propels speculative demand for these assets.

Bank loans expand as the monetary base increases, and other things remain unchanged. Despite the constant level of the monetary base, bank loans can rapidly increase as banks may become recklessly aggressive when the value of collateral rises. As a result, the credit multiplier will magnify rapidly during lending sprees as banks become more

lenient with credit risk assessment, for example, from 1994 to 1998 at the height of the lending boom cycle.

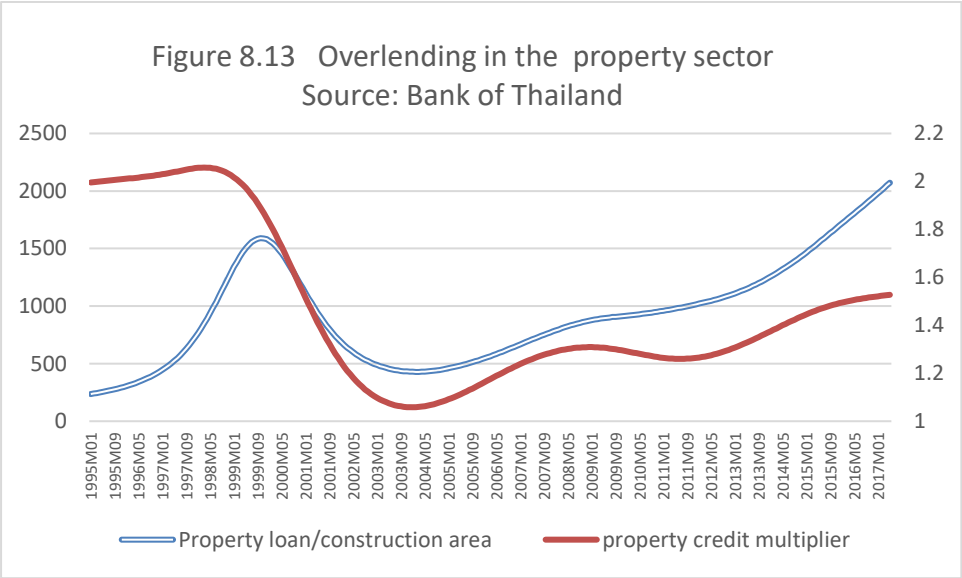

Figure 8. 13 Over Lending in the Property Sector

Figure 8. 13 shows that the property credit multiplier increased abnormally high before the financial crisis in 1997. We can monitor the financial sector's soundness by using the credit multiplier as an early warning indicator for over-lending. When the interest rate is high, commercial banks are willing to take more risk to obtain higher returns from assets. If the Bank of Thailand raises the interest rate on its lending facilities, banks would be discouraged in lending, thereby causing a decline in the credit multiplier. This conclusion may not hold if commercial banks can get access to cheap foreign sources of funds and the forward exchange market works efficiently.

An increase in the minimum lending rate (MLR) would raise the value of the credit multiplier, while the BOT lending rate reduces it. There was a significant degree of lending inertia. A positive shock in the credit multiplier did not entirely phase out after a year. Because of the long lag effects of shocks in lending, it is difficult to curtail rapid growth of credit within a year, to boost credit growth within a short period after the economy experiences a credit crunch.

When the credit multiplier increases, and if the monetary base growth is uncontrollable, the impact on credit growth would be excessive. When large amounts of foreign capital flow into the stock market and the Bank of Thailand must prevent currency appreciation, asset price bubbles are likely to appear. Figure 8.14 shows the booms in the property sector. Land prices and condominium prices increased substantially between 2009 and 2018. Similarly, the prices of single houses and townhouses increase, although they moved at a slower pace.

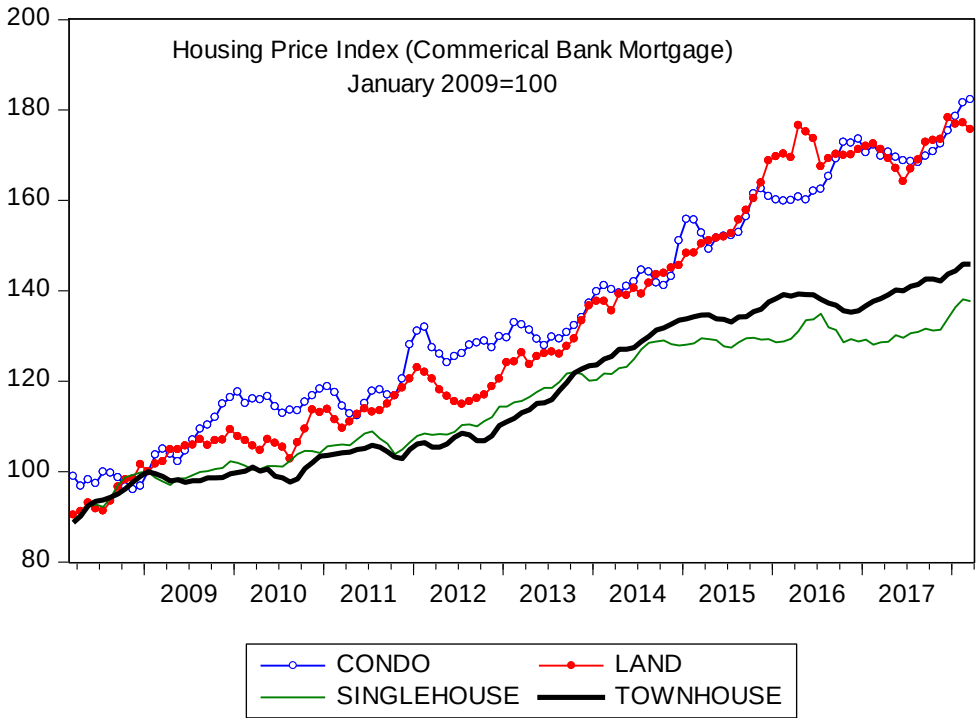

Figure 8. 14 Rising Property Prices

By controlling the level of the monetary base, the BoT can reduce excess supply of the property sector. Estimation of the excess supply of housing can be measured by the ratio of property credit to the construction area (Figure 8.15). Property credit extended to property developers enlarge the supply of housing and commercial spaces. If it rises faster than the construction areas, it indicates enlarged supply of the property sector, just like the steep increase before the financial crisis. On the other hand, during the downturns of the non-traded sector, the ratio fell sharply until reached its trough in 2004, before it started the rising trend. The ability to restrain the growth of the monetary base is crucial for successful control of the asset bubbles[ii].

An important policy implication is that the BoT can affect the supply of housing and commercial property by controlling the monetary base. The best way to curb the asset bubbles to begin as early as possible when there is a sign of bubble formation because there is always a lag effect of monetary policy implementation. The sign of such formation can be seen from the index of the Dutch Disease. It is proxied by the price ratio of exports property. Shown in Figure 8.15, the prices of land and condominium rose faster than the export price between 2011 and 2017. Note that during the period 1991-2005, there was no sign of Dutch disease (Figure 2.10) and the eroding international competitiveness, because the growth during that period was driven by strong export growth. The boom in the property sector occurred at the same time of export booms., the degree of Dutch disease was less pronounced.

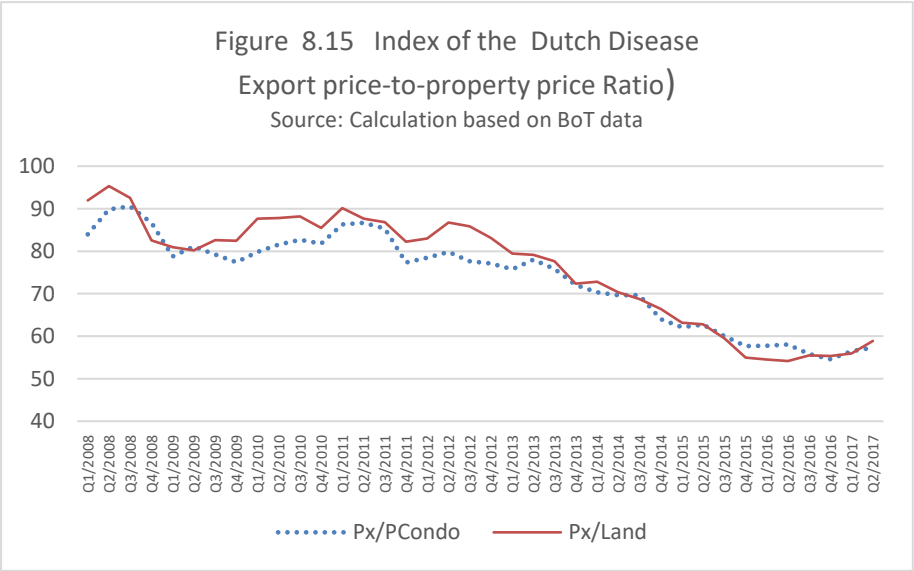

Figure 8. 15 Signs of creeping Dutch disease (2008-2017)

Resources are relocated to the non-traded sector rather than traded sector, thereby reducing international competitiveness. The slowdown in Thailand's exports can partly be attributed to the supply factor, in addition to the demand factor from the slowdown in the world trade volume. The lack of insufficient investment in the tradeable sector, compounded by the problem of the downturns of the FDI inflows, limits productivity growth and erodes the competitiveness of Thailand's exports.

7. Concluding remarks

What are monetary policy strategies that can ensure stable growth and price stability? The answer to that question is provided in this chapter. There is a long-run relationship between output and monetary aggregates. Monetary policy can stabilize the economy to achieve long-term growth and price stability. Changes in monetary aggregates influence the cyclical movement of real output. If the broad money supply can grow at a stable rate corresponding to output growth, monetary authorities can avoid deep recessions and excessive booms.

Past excessive growth of monetary aggregates was related to capital account liberalization and the fixed exchange rate regime. Despite the low level of claims on government, monetary aggregates increased substantially before the 1998 financial crisis. Capital flows and foreign exchange market interventions led to burgeoning net foreign assets. Consequently, the monetary base and broad money supply increased at an excessive rate, causing an unsustainable boom. A general lesson is that pursuing an unrealistic exchange rate target could undermine the fundamental objectives of

monetary policy: to sustain growth and maintain price stability. There is a trade-off between inflation and unemployment. The cost of pushing the economy to full employment is not high in terms of sacrificing price stability. Nevertheless, persistent inflation is difficult to subdue after it starts to accelerate.

Given the concentration of the banking industry, monetary easing strategies during recessions may not be able to stimulate the economy back to the long-term growth path unless business confidence can be restored. The tight monetary policy works more effectively during booms when investors are constrained by credit availability. Before the 1998 economic crisis, excessive bank lending can be captured by the rising credit multiplier. Consequently, monetary authorities must scrutinize the movement of the credit multiplier, which can be a leading indicator of asset price bubbles. Since stock market bubbles precede property bubbles, it is desirable and possible to burst the stock market bubble with quantity tightening policies to curb excessive output and credit growth. It does not mean that stock price indexes should be included in monetary policy reaction functions.

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[i] Mandler (2009) finds evidence of a strong deterioration in the stabilization success of US monetary policy reaction functions that respond to stock market indices.

[ii] A dynamic least squares estimation of the monthly data between 1995 and 2017 reveals that the elasticity of the property excess supply with respect to cyclically adjusted monetary base is 0.5, which is statistically significant.