Sayuri Shirai: Recent monetary policy trends in advanced economies and the Asia-Pacific region

Keynote address by Ms Sayuri Shirai, Member of the Policy Board of the Bank of Japan, to the National asset liability management conference, Singapore, 23 July 2014.

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I. Introduction

It is a great honor to visit Singapore and have the opportunity to give a keynote address at the National Asset-Liability Management conference. I have been a Bank of Japan (BOJ) Policy Board member since 2011, and am responsible for making decisions on monetary policy conduct with Governor Haruhiko Kuroda and other Policy Board members. Today, I would like to talk about the recent monetary policy trends in advanced economies and the Asia-Pacific region. In early January this year, I had the opportunity of giving a speech in Singapore on recent monetary policy developments in advanced economies and their relationship with emerging economies. Immediately after that, I was pleasantly surprised when Central Banking Publications, the organizer of today's conference, kindly asked me to extend this line of thinking in the context of the Asia-Pacific region and give a speech today. While it is a challenging task to review the developments in this diverse region, I hope that my speech will provide a useful background to foster active discussions during this conference.

I will begin with an overview of recent monetary policy in advanced economies (covering *the United States, the euro area, Japan, and the United Kingdom*). I will then focus on the Asia-Pacific region by summarizing the features of monetary policy conduct and its related challenges over the past decade – covering nine economies (*Australia, China, Indonesia, Malaysia, New Zealand, the Philippines, Singapore, South Korea, and Thailand*). Finally, I will present my views on the region's inflation performance and the direction of future monetary policy conduct.

II. Recent monetary policy conduct features in advanced economies

Since the outset of the global financial crisis, monetary policy conduct has changed dramatically in advanced economies. Let me highlight four features commonly observed among such economies: (1) *adoption of a 2 percent inflation target*; (2) *stabilizing inflation expectations at around 2 percent*; (3) *unconventional monetary policy under the zero interest rate lower bound*; and (4) *an emphasis on financial stability and its relation to monetary and macroprudential policies*. I will explain these features by discussing four central banks: the U.S. Federal Reserve, the European Central Bank (ECB), the BOJ, and the Bank of England (BOE), as shown in Chart 1.

A. Adoption of a 2 percent inflation target

First, all four central banks have adopted a medium-term inflation target or a numerical definition of price stability with a 2 percent, or close to 2 percent, convergence: their monetary policy mandates all include price stability. These central banks use headline inflation as a reference to their inflation targets (the Harmonised Index of Consumer Prices [HICP] for the ECB; the consumer price index [CPI] for the BOJ and the BOE; and the price index for personal consumption expenditures [PCE] for the Federal Reserve). The Federal Reserve, the ECB, and the BOJ also officially use the core PCE deflator, the core HICP, and

the core CPI, respectively, as operational guides to examine the underlining price movements in monetary policy conduct.[1]

The BOE and the ECB were frontrunners in adopting price stability targets, and the current numerical targets were adopted in 2003, prior to the global financial crisis, while the Federal Reserve and the BOJ did so after the crisis in 2012 and 2013, respectively. Regardless of whether an *inflation-targeting framework* is officially implemented, the practices adopted are similar for each of the four central banks. These practices include adopting a numerical inflation target with clear mandates, the release of medium-term forecasts on future inflation and economic growth (generally for about three years), the presence of a committee that independently determines monetary policy, and various accountability requirements on achieving the target.

These central banks all make policy decisions to align their *inflation forecasts* with their specific inflation target *over the medium term* (or medium to long term). In other words, they conduct a so-called "*flexible inflation-targeting framework"* that is defined by Professor Lars E.O. Svensson as monetary policy conduct that attempts to stabilize inflation around the inflation target and to stabilize the output gap around the sustainable level. Namely, monetary policy should be conducted flexibly with the aim of achieving the inflation target by taking into account various possible disturbances and their impacts on economic growth. This means conducting monetary policy so that a central bank's inflation forecast gradually approaches its target in the medium term and inflation meets the target as a *medium-term average*. This approach is embedded in the monetary policy framework of the Federal Reserve because of its explicit dual mandate of price stability and maximum employment.

In recent years, the realized inflation rates in some of these economies have been below the relevant target for some time (Chart 2). This seems to reflect declining energy prices, excessive employment and capital stock, exchange rate appreciation, and continued headwinds caused by the global financial crisis. Those headwinds include strengthened financial regulations, banks' tight lending standards, the deleveraging process by firms and households, and the moderate pace of global economic recovery. As a result, some central banks seem to be finding it necessary to conduct monetary easing for longer periods than originally expected.

B. Stabilizing inflation expectations at around 2 percent

To achieve price stability, a central bank needs to stabilize the public's inflation expectations at around its price stability target. If such expectations are well anchored, there is a tendency for inflation to converge to the target even after a deviation. In general, long-term inflation expectations are more important than short-term expectations, with the latter tending to be more volatile and sensitive to both commodity prices and the prices of frequently-purchased goods and services. The Federal Reserve, the ECB, and the BOE all claim that their long-term inflation expectations (e.g., five years ahead) remain well anchored at around 2 percent. This is confirmed for the United States and the euro area by economic forecaster data on long-term inflation expectations (Chart 2). On the other hand, long-term inflation expectations have exceeded the target for over five years in the United Kingdom because of various factors including exchange rate depreciation, energy price increases, a hike in the value-added tax, and rises in various administered and regulated prices. However, its inflation expectations have started to fall recently since the highlighted effects have dissipated.

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[1] These central banks have different "core" index definitions. The Federal Reserve defines it as "all items less food and energy," the ECB defines it as "all items less energy, food, alcohol, and tobacco," and the BOJ defines it as "all items less fresh food."

Situation in Japan and a conundrum regarding inflation expectations

The BOJ adopted its 2 percent price stability target in January 2013, followed by the launch of *quantitative and qualitative monetary easing (QQE)* in April of the same year. These initiatives are aimed at overcoming the mild deflation that has lingered for 15 years in Japan. A distinct feature of the QQE is that it aims not only to achieve 2 percent inflation at the earliest possible time, but also to raise long-term inflation expectations from the current low level of around 1 percent to around 2 percent, and then stabilize them at around 2 percent. In this sense, the BOJ's monetary easing objective differs from those of other central banks. These banks aim to increase aggregate demand and thereby support economic recovery, while maintaining the current situation where long-term inflation expectations are already stable at around 2 percent.

Japan's long-term inflation expectations (e.g., five years ahead) have averaged about 1 percent from 1995 to early 2014. This is somewhat perplexing since both realized inflation and short-term inflation expectations (e.g., one year ahead) remained consistently below long-term inflation expectations and often faced mild deflation. Relatively higher long-term inflation expectations may be attributable to the public's long-held belief that prices will eventually rise; this is particularly relevant for those who experienced the oil crisis in the 1970s and the bubble period in the 1980s. Chart 2 also indicates that Japan's inflation expectations are more volatile than those in the United States, the euro area, and the United Kingdom (before the global financial crisis). This suggests that Japan's inflation expectations have not yet been anchored.

Against this backdrop, QQE was meant to produce a *regime change* in monetary policy thereby raising realized inflation and inflation expectations toward 2 percent. This approach is similar (but conducted in a reverse manner) to that adopted by the then Federal Reserve Chairman Paul Volcker in 1979–1983. The recent rise in the realized inflation in Japan is largely attributable to the consumption tax hike from 5 percent to 8 percent in April 2014 (Chart 2). Even excluding this temporary effect, inflation is now around 1¼ percent and shows a steady rise from the recent bottom of minus 0.5 percent recorded in March 2013. The BOJ projects that inflation is likely to be around 1¼ percent for some time, and thereafter follow a rising trend again from the second half of this fiscal year. Similarly, a sharp rise in short-term inflation expectations (e.g., one year ahead) during 2013 mainly reflects this tax effect. Thus, a drop in expectations from over 2 percent to below 2 percent in April 2014 reflects an evaporation of the tax effect. On the other hand, since long-term inflation expectations (e.g., five years ahead) do not incorporate this tax effect, the recent signs of an increase are encouraging. Based on various indicators related to inflation expectations of households, firms, and market participants, the BOJ judges that long-term inflation expectations are generally on a moderate rising trend; however, whether this trend continues should be closely monitored, as these indicators show some different movements.

It is clear that, since the QQE adoption, Japan's economy has shown positive signs of moving out of deflation (Chart 2). Some firms seem to be increasingly confident about raising their sales prices by providing innovative products and services and thereby tapping demand. An increasing number of households appear to be enjoying employment and nominal income growth. Transforming the public's deflation-oriented mindsets and their resultant risk-averse economic behavior will take some time, but positive developments are gradually but steadily spreading in the economy. Going forward, monetary policy should continue to support the transformation process and economic recovery. The government's growth strategy to strengthen the potential of Japan's economy combined with firms' initiatives mean that it is possible to first achieve the 2 percent price stability target and to subsequently sustain the 2 percent inflation in a stable manner. The expression "sustain the 2 percent inflation in a stable manner" is considered equivalent to the idea of stabilizing long-term inflation expectations at around 2 percent. In other words, in such a situation, inflation of around 2 percent would be realized as a *medium-term average*, as observed in other advanced economies.

C. Unconventional monetary policy under the zero interest rate lower bound

In the face of the zero lower bound on nominal interest rates, the four central banks have actively conducted "unconventional" monetary easing measures such as (1) *large-scale purchase of various financial assets*, (2) *forward guidance over the future monetary policy stance*, (3) *longer-term liquidity provision facility*, (4) *long-term conditional lending, and* (5) *a negative interest rate charge on reserves* (Chart 3). In what follows, I will briefly touch on the current initiatives taken by these four central banks.

Measure (1): Large-scale purchase of various financial assets

The Federal Reserve, the BOJ, and the BOE have performed large-scale asset purchase operations to exert downward pressure on their longer-term interest rates that remain in positive territory despite the policy rate reaching nearly zero. This policy is sometimes referred to as *quantitative easing*. While sovereign bonds are the major assets purchased, the Federal Reserve also purchases agency mortgage-backed securities (MBSs), and the BOJ purchases diverse assets (treasury discount bills [T-Bills], corporate bonds, CP, exchange-traded funds [ETFs], and Japan real estate investment trusts [J-REITs]). The Federal Reserve is currently reducing the amount of asset purchases at a measured pace, while the BOJ continues to purchase assets based at a pre-determined annual pace (a pace currently clarified until the end of 2014). The BOE is maintaining its outstanding asset holding amounts. Meanwhile, ***the ECB*** has taken a different approach by purchasing a limited amount of financial assets and sterilizing the amount of sovereign bonds purchased under its securities market program (SMP). In June 2014, the commitment to sterilizing those bonds purchased was suspended because inflationary concerns had dissipated. Moreover, the ECB decided to intensify preparatory work related to the outright purchases of asset-backed securities (ABSs) as a *credit easing* policy, rather than as a quantitative easing policy.

Measure (2): forward guidance

All four central banks have adopted forward guidance: this refers to a communication strategy undertaken by central banks to provide information to the markets and the public on their future monetary policy stances. Of the four, the ***Federal Reserve, the ECB, and the BOE*** apply forward guidance mainly to their respective short-term policy interest rates – the operational target for monetary policy – and provide guidance to the markets and the public about how long they expect to keep the current low interest rates. In contrast, ***the BOJ*** applies forward guidance to its QQE *as a package*, and *not* on its policy interest rate. This is because its operational target was shifted from the uncollateralized overnight call rate to the monetary base. Once the size of the annual pace of increase in the monetary base is set, the approximate increase in Japanese government bond (JGB) purchases is decided accordingly; hence, there is a close link between the monetary base and the amount of assets purchased. The BOJ then uses forward guidance to inform the markets and the public of its intention to maintain the monetary base increase and thus asset purchases in the future.

Measure (3): Longer-term liquidity provision facility

The ECB and the BOJ currently have longer-term liquidity provision facilities to assist the funding of financial institutions and to foster their lending activities to promote economic activity. ***The ECB*** is conducting *longer-term refinancing operations (LTROs)* with a fixed interest rate and a full allotment. The ECB previously offered LTROs with three year maturity terms in December 2011 and February 2012: currently, LTROs are available under a three month maturity term until December 2016. Meanwhile, ***the BOJ*** conducted several one-year liquidity operations during April and May 2013 to cope with the volatile JGB market. While liquidity operations with maturity levels of up to one year are still available, the BOJ currently mainly provides three-month operations.

Measure (4): Long-term conditional lending

The BOJ was the first central bank, under the zero interest rate lower bound, to introduce a long-term lending facility where the amount of lending to financial institutions is conditional on the increased lending by these institutions to the private sector. The aim is to promote lending activities by financial institutions. The BOJ currently operates two programs: (1) *the fund-provisioning measure to support strengthening the foundations for economic growth (the Growth-Supporting Funding Facility)* introduced in 2010 (provision of funds at a 0.1 percent fixed interest rate for up to four years, based on the increased lending and investment realized by the financial institutions toward strengthening the foundations for economic growth); and (2) *the fund-provisioning measure to stimulate bank lending (the Stimulating Bank Lending Facility)* introduced in 2013 (provision of funds for up to four years and of up to twice the net increase in the financial institutions' lending without a limit). Subsequently, ***the BOE*** adopted the *Funding for Lending Scheme (FLS)* in 2012, allowing financial institutions to borrow U.K. Treasury bills at a low cost in exchange for all eligible collateral depending on their realized net lending to small and medium-sized enterprises (SMEs). Moreover, in June 2014, the ECB newly introduced *Targeted LTROs* by providing long-term funds (for a maximum of three to four years) to financial institutions up to a total of three times the net increase in private-sector lending excluding mortgages, with a fixed interest rate at 10 basis points plus the prevailing interest rate of the main refinancing operations (MROs).

Measure (5): Negative interest rate charge on reserves

The ECB introduced a negative interest rate (negative 0.1 percent) on excess reserves and lowered deposit facility interest rates to the same negative rate in June 2014, in conjunction with a cut in other policy interest rates. Meanwhile, ***the Federal Reserve and the BOJ*** maintain a positive respective 0.25 percent and 0.1 percent interest rate on excess reserves. ***The BOE*** applies a positive 0.5 percent rate on total reserves. In general, central banks maintain positive interest rates on (excess) reserves for various reasons, including maintaining the proper functioning of the interbank markets. If interest rates on reserves are negative, the interbank markets could shrink, and this could generate a situation where financial institutions are unable to promptly raise funds from the markets when most needed. Since the interest rate on reserves provides the floor for interbank market interest rates, keeping this rate in positive territory could mitigate large fluctuations in the interbank market rates. This enables a central bank to smoothly provide sufficient liquidity and to expand its balance sheet as a quantitative easing policy.

Meanwhile, some expect positive aspects from introducing a negative interest rate, such as tackling exchange rate appreciation and lowering the bank lending rate. For example, in Denmark, Danmarks Nationalbank applied a negative interest rate on its certificate of deposit (CD) facility from July 2012 to April 2014 to fight massive capital inflows and to defend its peg against the euro under the Exchange Rate Mechanism II (ERM II). As a result, a positive effect was observed in leading to currency depreciation and maintenance of the peg. However, the lending rates were largely unaffected and the amount of lending actually dropped.

D. Emphasis on financial stability and its relation to monetary and macroprudential policies

The global financial crisis has led each country to place increased importance on macroprudential policy, given that stability in the financial system as a whole may not be achieved solely through the existing microprudential policies. This arises from the globally shared view that the "Great Moderation" period – which continued until the mid-2000s – successfully achieved general price stability but failed to prevent the global financial crisis. Macroprudential policy focuses on financial institutions and the markets (and their relationships) as major constituents of the financial system, as well as on the effects of the relationship between economic activity and the financial system. In this regard, central banks

closely monitor macroeconomic and financial market developments, collect information regarding financial transactions, and function as the lenders of the last resort to individual financial institutions with the aim of ensuring financial system stability. Thus, the use of these specific skills, knowledge, and functions is considered effective in optimizing the effects of macroprudential policy. As a result, there is a growing consensus that central banks have an increasing role in macroprudential policies to maintain financial stability.

However, there is an open question on the correct balance between macroprudential policy decisions and monetary policy decisions for a central bank. For example, monetary tightening, such as an interest rate hike, is generally an appropriate policy option, particularly when there are signs of heightened inflationary pressures or when rapid credit growth and asset price bubbles are emerging across sectors. This is even true in the case of containing an increasing risk of financial imbalances when the realized inflation has already been sustained at the target level or when long-term inflation expectations remain well anchored. However, problems may arise when a central bank is conducting monetary easing over a long period in a protracted downturn phase of the economy. In this circumstance, inflation may remain below the target for an overly long time and long-term inflation expectations may have begun to decline, while financial imbalances such as bubbles may have started to appear. In such a situation, a central bank needs to continue monetary easing to both fulfill its mandate to maintain price stability and avoid a loss of credibility by failing to meet the inflation target. The problem arises because such a policy may increase the risk of further credit growth and amplify asset bubbles and may thus create a dilemma. These issues are becoming relevant in recent years. Some advanced economies including Belgium, Norway, Sweden, Switzerland, and the United Kingdom appear to be facing a rapid increase in housing prices, while their CPI inflations remain low and/or below the inflation targets.

Greater focus on macroprudential policy by the central bank community

The above tradeoff between price stability and financial stability suggests that assigning too many objectives to monetary policy without allocating sufficient policy tools may be potentially problematic. Thus, the active use of macroprudential policy by central banks is widely considered as a first line of defense against emerging financial imbalances. Macroprudential policies are measures that affect the behavior of financial institutions, and the Committee on the Global Financial System (CGFS) considers that they can be classified into (1) *capital-based measures*, (2) *liquidity-based measures*, and (3) *asset-side measures*.[2] Capital-based measures include *countercyclical capital buffers* (*CCBs*) that are incorporated in the Basel III framework and *sector-based capital buffers*. Liquidity-based measures include a liquidity ratio, a limit on net open positions in foreign currencies, and a reserve requirement. Asset-side measures include credit volume controls, a loan-to-value (LTV) ratio (mainly applied for housing and real estate loans), a debt-to-income (DTI) ratio, and various taxes related to real estate transactions. Of these, there is a focus on CCBs as a practical macroprudential measure in some advanced economies. While CCBs are scheduled to be applied in each country in 2016, Switzerland took thelead by instituting their activation from July 2012, where the Federal Council makes CCB decisions based on the Swiss National Bank recommendations. The CCBs can either be applied as aggregate based and/or sector based; and the *sector-based capital buffers* of 1 percent was applied for residential mortgages in February 2013, and subsequently doubled to 2 percent in June 2014.

On the institutional aspect of conducting macroprudential policy, ***the United Kingdom*** has made a substantial institutional reform. Its *Financial Policy Committee (FPC)* was established within the BOE to conduct macroprudential policy, while its *Monetary Policy Committee (MPC)* continues to engage in monetary policy. The FPC seems to be currently seeking

[2] The Committee on the Global Financial System, "Operationalising the Selection and Application of Macroprudential Instruments," *CGFS Papers*, No. 48, 2012.

specific means to encourage coordination with the MPC. The MPC has recently expressed increasing concerns over the surge in housing prices and the expansionary trend in mortgages in the low interest rate environment, and considers that macroprudential policy should be used as a first line of defense to mitigate the related systemic risks. The CCBs are considered to be important macroprudential measures, and in May 2014, the FPC was given responsibility for setting the CCB rate by the government. In line with its new responsibility, the FPC decided to set the rate at zero percent in June 2014. In the same month, the FPC also made recommendation to the Prudential Regulation Authority (PRA) to apply a DTI-ratio-like measure on residential mortgages.

Meanwhile, ***the European Union (EU***) has learned the lesson that the lack of a cross-border banking monitoring and management system resulted in a delayed, inadequate response to the crisis. This promoted the move toward the Banking Union. In a major step, the *Single Supervisory Mechanism (SSM)* will commence operations in November 2014, with the ECB playing a supervisory role in monitoring the soundness of major banks. Moreover, the EU established a union-level body known as the *European Systemic Risk Board (ESRB)* in 2010, where the president of the ECB serves as the head of the Board and other members include governors of national central banks, a representative of the European Commission, and senior officers of relevant regulatory institutions in the region. The ESRB's task is to identify risks related to the financial system and to provide recommendations to national regulatory authorities when necessary.

In ***the United States***, the *Financial Stability Oversight Council (FSOC)* – whose members include the Chairman of the Federal Reserve – was established in 2010 as an institution responsible for monitoring the potential risks related to financial stability and for making recommendations to the Federal Reserve on prudential regulations and supervision. In Japan, *the Financial Services Agency (FSA)* – the primary financial regulatory authority – and the BOJ decided in June 2014 to hold a semi-annual joint meeting to exchange views on financial stability. This move reflects the coordinated efforts to promote financial system stability by making contributions in their respective fields of responsibility. In this regard, the BOJ conducts on-site examinations and off-site monitoring of individual financial institutions, and thereby carries out various analyses on financial system stability and related risks from macroprudential perspectives. The BOJ also publishes a semi-annual *Financial Stability Report.*

Use of liquidity-absorbing operations to maintain financial stability

While macroprudential policies are generally considered as the first line of defense against financial imbalances, there has recently been an increasing focus on the application of an interest rate on excess reserves and/or reverse repurchase agreements as another possible method of containing the ample liquidity circulating in the money market.[3] As a central bank is able to set such an interest rate on its own, it may be able to control bank reserves and thus, can possibly affect the stability of the financial system by encouraging financial institutions to hold ample liquidity with the central bank. Importantly, a central bank can implement this measure while retaining the ability to affect the short-term interest rate, so that a tradeoff in terms of price and economic stabilization goals can be limited. The application of these tools is actively debated in ***the United States*** recently in the context of a smooth exit policy to normalize market interest rates while maintaining abundant liquidity within the Federal Reserve. At the same time, using these tools to maintain abundant excess reserves for long periods is also considered to be potentially useful to contain excessive investment and lending by banks and thus prevent asset price bubbles.

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[3] See, for example, Joseph E. Gagnon and Brian Sack, "Monetary Policy with Abundant Liquidity: A New Operating Framework for the Federal Reserve," Peterson Institute for International Economics, Policy Briefs No. 14–4, January 2014; and John C. Williams, "Financial Stability and Monetary Policy: Happy Marriage or Untenable Union?," a presentation to the Deutsche Bundesbank Conference in Germany, June 5, 2014.

III. Changes in monetary policy conduct in the Asia-Pacific region

Now, I would like to turn to the Asia-Pacific region covering nine economies. Following the East Asian economic crisis of 1997–1998, many central banks in the region shifted away from the rigid dollar peg system and at the same time, their monetary policy frameworks also changed. As a result, there is some degree of convergence with regard to their monetary policy conduct, although there is still considerable diversity. I would like to highlight five common features: (1) *a growing emphasis on price stability*; (2) *the highly-flexible inflation-targeting framework;* (3) *allowing greater movements in the exchange rates*; (4) *a low policy interest rate in the face of large capital inflows*; and (5) *extensive use of macroprudential policy to maintain financial stability*.

A. Growing emphasis on price stability

All of the region's central banks emphasize price stability or, in other words, the maintenance of low and stable inflation as their monetary policy objective. The central banks in New Zealand, the Philippines, Singapore, South Korea, and Thailand specify price stability as their monetary policy mandate. The Reserve Bank of Australia (RBA) encompasses three mandates (stability of the domestic currency, full employment, and the economic prosperity and welfare of the Australian people), with these objectives being expressed in practice by the inflation target. The Bank Indonesia (BI) defines rupiah stability as the stability of general prices; in practice, maintaining low and stable inflation is considered the primary monetary policy objective. Similarly, the mandate of Bank Negara Malaysia (BNM) is to maintain monetary stability or ringgit stability that is thought to be preserved by price stability. The objective of monetary policy in China is to maintain renminbi stability.

Regardless of differences in terms of how to express the mandate, all nine central banks equally emphasize the importance of achieving price stability. Six economies (Australia, New Zealand, South Korea, Thailand, the Philippines, and Indonesia) attempt to achieve price stability by officially adopting an *inflation-targeting framework* that will be explained later (Chart 4). China pursues price stability through its *monetary aggregate target (M2)* and Singapore uses an *exchange rate anchor*. The International Monetary Fund (IMF) classifies Malaysia in a category with *no explicitly-stated nominal anchor but rather monitors various indicators in conducting monetary policy*. All central banks, with the exception of those in Malaysia and Singapore, provide numerical inflation targets. China sets an inflation target for each year in approximately March of the relevant year, with the target for 2014 being 3.5 percent. Other central banks provide inflation targets under the inflation-targeting framework that will be explained next.

B. The highly-flexible inflation-targeting framework

In the Asia-Pacific region, six central banks have adopted an *inflation-targeting framework*. New Zealand and Australia were regional frontrunners, adopting it after experiencing high inflation rates in the 1970s and early 1980s. New Zealand was the first to develop the framework in 1988, subsequently followed by Canada (1991), the United Kingdom (1992) and Australia and Sweden (1993). These moves were motivated by two considerations: (1) ensuring that the inflation that had started to decelerate in the second half of the 1980s would continue to be contained; and (2) the statistical relationship between monetary stock (or exchange rates) and inflation had become unstable, making it necessary for these central banks to adjust their monetary policy frameworks.

In East Asia, South Korea was the first to adopt the inflation-targeting framework in 1998, followed by Indonesia and Thailand (2000), and the Philippines (2002) (Chart 5). In particular, South Korea, Indonesia, and Thailand were forced to abandon the *de facto* U.S. dollar peg policy because of massive speculative attacks during the East Asian economic crisis, providing them with an opportunity to review their monetary policy frameworks. The Philippines shifted from monetary-targeting to inflation-targeting, following global trends and based on the need to demonstrate a firmer commitment to controlling inflation to the public.

Main features of the inflation-targeting framework

Of the six central banks that have adopted the inflation-targeting framework, five use the *headline CPI* as reference to inflation targets, with Thailand using the *core CPI* (Chart 6). Many central banks assess the underlying inflation trend by monitoring the core CPI as well. Each of the six relevant central banks now places importance on short-term policy interest rate and uses it as the main operational target for monetary policy.

As a first mover, New Zealand initially adopted a relatively rigid framework and attempted to meet price stability within a short time span. However, such a tight monetary policy led to a sharp appreciation of the New Zealand dollar and forced substantial adjustment burdens on the export and import substitution sectors. Consequently, New Zealand decided to increase flexibility over time by allowing a deviation from the inflation target range of 1–3 percent and meeting the target range *on average over the medium term*. Its 1–3 percent target range has been *fixed* since 2000. In addition, since 2012, its inflation target definition has been *clarified* further by adding the expression "with a focus on keeping future average inflation near the 2 percent target midpoint" to the existing 1–3 percent target range. Similarly, Australia's inflation target range of 2–3 percent is also defined as a *medium-term average*.

In East Asia, South Korea set its inflation target range for 2013–2015 at 2.5–3.5 percent under a medium-term inflation-target setting system adopted in 2004 (prior to that, it set an inflation target annually). In 2012, Indonesia set its inflation target range at 4.5 percent ±1 percentage point for 2012–2014, and 4 percent ±1 percentage point for 2015. Thailand narrowed its inflation target range from 0.0–3.5 percent to 0.5–3.0 percent in 2009, and thereafter has maintained this target, although its validity is examined every year. The inflation target range in the Philippines is set at 4 percent ±1 percentage point for 2011–2014 and at 3 percent ±1 percentage point for 2015–2016 under a medium-term inflation-target setting system adopted in 2010 (prior to that, it set an inflation target annually).

Why is the inflation-targeting framework more flexible than in advanced economies?

The above observations suggest that the inflation-targeting frameworks in the Asia-Pacific region are more *flexible* than those adopted in the advanced economies described earlier. Particularly, greater flexibility is demonstrated by (1) an adoption of an *inflation target range* rather than an *inflation target point*, (2) the acceptance of relatively large deviations from the inflation target, and (3) the use of relatively *frequently-reviewed* inflation targets – rather than *fixed* inflation targets – in South Korea, Indonesia, Thailand, and the Philippines. The greater flexibility in the region relative to advanced economies may reflect several factors: (1) the difficulty in pinpointing an *optimal inflation rate*, partly due to the rapid structural changes and the evolving stages of economic developments; (2) a greater fluctuations in the economy caused by volatile commodity prices and exchange rates; and (3) the need to use the target range to prevent the public from forming the impression that meeting the inflation target is prioritized at the expense of economic growth.

C. Allowing greater movements in the exchange rates

Since the East Asian economic crisis, South Korea, Indonesia, and Thailand have abandoned the rigid U.S. dollar peg system. Other economies in the Asia-Pacific region have also increased flexibility in their exchange rate arrangements. Overall, their exchange rates have become more volatile and it now seems that none of the economies in the region target specific levels of exchange rates against the U.S. dollar (Chart 6).

Shifting toward more flexible exchange rate arrangements

In the ***inflation-targeting economies***, IMF classifications consider that Australia and Japan are adopting *free-floating* exchange rate arrangements with no foreign exchange market interventions, similar to the United States, the euro area, and the United Kingdom (Chart 4). The exchange rate arrangement in New Zealand was generally regarded as *free floating*, but was reclassified as *floating* because small interventions were made to dampen the sharp

appreciation of the New Zealand dollar since 2012. The arrangements in South Korea, Thailand, and the Philippines are also classified as *floating* with each having more frequent interventions than New Zealand. Meanwhile, Indonesia is regarded as having a less flexible arrangement than these economies. It is classified as having a so-called *crawl-like arrangement* because the rupiah has followed a depreciating trend against the U.S. dollar within a margin of less than 2 percentage points since June 2012. The IMF regards the Indonesian arrangement as a *de facto exchange rate anchor to the U.S. dollar*. Indonesia's preference for a stable exchange rate may reflect the need to stabilize the prices of imported and exported commodities, as well as to preserve the value of foreign debt denominated in the U.S. dollar. Some studies point out that the inflation-targeting frameworks in South Korea, Thailand, and the Philippines have resulted in higher volatilities in the exchange rates. Moreover, the degree of volatility in these economies was found to be larger than that in advanced economies.[4]

Regarding ***economies without an inflation-targeting framework***, Singapore and China have adopted a *crawl-like arrangement* (Chart 4). In Singapore, the Singapore dollar follows an *appreciating* trend against a basket of currencies within a 2 percent band since 2011. This arrangement is often referred to as a *BBC (basket, band, and crawl) targeting*; the content of the BBC is regularly adjusted. Because of its country-specific features (the small economic size, the high degree of trade and financial openness, and the high degree of import penetration), the BBC targeting is considered to work better than the short-term policy interest rate targeting to achieve price stability in Singapore. Meanwhile, China has gradually enhanced the flexibility in its exchange rate policy and has widened the interbank trading fluctuation band of the renminbi exchange rate against the U.S. dollar. For example, the most recent move was a widening of the band from ±0.5 percentage point of the daily central parity released by the China Foreign Exchange Trade System to ±1 percentage point in April 2012 and further to ±2 percentage points in March 2014. In addition, in early July 2014, the State Administration of Foreign Exchange (SAFE) announced that it will permit banks to set their own exchange rates for the renminbi against the U.S. dollar in deals with their clients. Malaysia shifted from a rigid U.S. dollar peg to a more flexible arrangement in 2005 that does not belong to a specific exchange rate arrangement and is now categorized by the IMF as *other managed arrangement.* The flexibility in Malaysian exchange rate policy has been enhanced remarkably (Chart 6).

D. Low policy interest rate in the face of large capital inflows

Since the early 2000s, capital inflows to the Asia-Pacific region have increased rapidly in the form of bond investments with a wide range of entities increasing their bond issuance. Particularly, local-currency denominated bonds saw a remarkable increase, helping to offset a slowdown in bank loans. This increase partly reflected the active issuance of government bonds to finance the post-crisis expansionary fiscal policy. The maturity of both government and corporate bonds has lengthened, even during and after the global financial crisis. These developments are partly attributable to the initiatives by the governments and central banks in the region to foster local currency-denominated bond markets – such as the *Asian Bond Markets Initiative (ABMI)* and the *Asian Bond Fund (ABF).*

Greater linkages between local bond markets and global bond markets

The development of local currency-denominated bond markets help to improve the transmission mechanism of monetary policy. This supports the increasing use by central banks in the region of short-term policy interest rates as major operational targets in open market operations – shifting away from the traditional tool of controlling aggregate credit

[4] Siok K. Sek, Cheau P. Ooi, and Mohd. T. Ismail, "Investigating the Relationship between Exchange Rate and Inflation Targeting," *Applied Mathematical Sciences*, Vol. 6, No. 32, 2012, pp. 1571–1583.

volume and the frequent use of reserve requirements. As financial markets develop, it is likely that a cut in the short-term interest rate will affect longer-term interest rates more smoothly and thereby enhance the effects of monetary policy. The development of local currency-denominated bond markets has also enabled the region to reduce *double mismatches* (maturity and currency mismatches between assets and liabilities), thereby improving the balance sheets of the bond issuers – i.e., governments, firms, and financial institutions.

The development of bond markets has also strengthened linkages with global financial and capital markets. As a result, the region has become more susceptible to movements in global market interest rates and the herding behavior of foreign investors. Some foreign investors tend to adjust their long positions relatively quickly by selling their holdings of securities issued by economies in the region when interest rate volatility suddenly rises. Moreover, some foreign investors take short positions over exchange rates to hedge their positions over securities. As a result, it is sometimes the case that the exchange rates depreciate suddenly without accompanying large-scale actual capital outflows and that the rate fluctuations expand. The fostering of domestic bond markets with an increased number of domestic institutional investors may help to enhance the resilience of the economy to various shocks, but this will probably take some time.

Low policy interest rate and "follow-the-leader behaviour"

Large-scale capital inflows are often motivated by interest rate differentials. This move seems to have been amplified by the aforementioned cross-border money market and bond market linkages. While bringing various favorable effects to the region, capital inflows put their central banks in a trade-off regarding the decision to set short-term policy interest rates. That is, on the one hand, an increase in the short-term policy interest rates (either as a result of tight monetary policy or of foreign exchange market intervention followed by *sterilization*) helps to lower inflationary pressures, but may invite a new round of capital inflows by foreign investors in search of higher yields. Such an increase may also damage exporting sectors through a sharp appreciation of their domestic currencies. On the other hand, a decline in the short-term policy interest rates (either as a result of monetary easing or of *unsterilized foreign exchange market intervention*) helps exporting sectors through the lower volatility of foreign exchanges and the limited appreciation of their domestic currencies. However, such a decline may increase inflationary pressures and cause real estate bubbles and financial imbalances.

Taking this trade-off into account, some economies in the region tend to choose the latter option – namely, a decline in the policy interest rates – reflecting concerns over volatile exchange rates and an excessive appreciation (or *misalignments*). This is because high exchange rate volatility often leads to heightened volatility in output that in turn may well amplify the vulnerability of the economy. A volatile exchange rate also results in financial institution balance sheet fluctuations, thereby possibly destabilizing the financial intermediary functions. Consequently, some central banks that face large capital inflows tend to set lower short-term policy interest rates than normal – or lower than the interest rates that would have been adopted on the basis of certain monetary policy rules (such as the *Taylor rule*).[5] This phenomenon is referred to as "*follow-the-leader behaviour*" in terms of setting short-term policy interest rates, since central banks in the region tend to set their short-term policy interest rates in line with the low interest rates set by major central banks in advanced economies – even if such policy interest rates may not necessarily be in line with domestic inflationary developments. This may lead to negative short-term interest rates in real terms. Chart 7 shows that some economies in the Asia-Pacific region maintained positive interest

[5] See Dong He and Robert N. McCauley, "Transmitting Global Liquidity to East Asia: Policy Rates, Bond Yields, Currencies and Dollar Credit," *BIS Working Papers*, No. 431, 2013.

rates in real terms before the global financial crisis, but have shifted to negative interest rates in real terms after the crisis. The shift is likely to be a response to a lower global interest rate and large capital inflows.

Implications for the inflation-targeting economies

In relation to the six inflation-targeting economies in the Asia-Pacific region, Australia and New Zealand have generally maintained positive short-term interest rates in real terms, except for some periods. In Australia, the real short-term interest rate has recently been negative. Meanwhile, in South Korea, Thailand, the Philippines, and Indonesia, real short-term interest rates have occasionally become negative, and these rates have been at a low level as a trend since around 2010 when large capital inflows began to take place. Some studies show that the policy interest rates in Australia, Indonesia, Thailand, and the Philippines have been lower than the interest rates derived by the Taylor rule over the period.[6] A similar relationship was observed after the global financial crisis in New Zealand and South Korea. These results imply that, depending on the situation, price stability might sometimes be compromised over exchange rate stabilization. As a domestic interest rate tends to be adjusted in response to a foreign interest rate, a central bank may be prevented to some extent from performing an independent monetary policy, which is suggested by the *international finance trilemma*.

E. Extensive use of macroprudential policy to maintain financial stability

Central banks in the Asia-Pacific region pay particular attention to financial stability. In Australia, the Governor of the RBA chairs the *Council of Financial Regulators (CFR)* that was established in 1998, and discusses macroprudential issues with other regulators. In South Korea, the *Macroeconomic and Financial Committee (MFC)* was established in 2012, with the Deputy Governor of the Bank of Korea (BOK) participating as a committee member. The MFC exchange views regarding the implementation of macroprudential policy with relevant regulatory authorities. In Malaysia, BNM established the *Financial Stability Executive Committee (FSEC)* at the bank in 2010, as a monitoring and coordinating committee on financial stability with all relevant supervisory agencies.

In contrast to advanced economies, some economies in the Asia-Pacific region have been using macroprudential policy long before the global financial crisis. This is because such policy has been considered necessary to contain volatile capital inflows and the resultant financial imbalances. As mentioned earlier, macroprudential measures can be classified into (1) *capital-based measures*, (2) *liquidity-based measures*, and (3) *asset-side measures*. Some economies in the region use a mixture of the three measures, and while they are potentially useful when capital inflows are intermediated through cross-border banking activities, they might be less effective if capital flows take place through unregulated financial institutions. Despite the availability and use of a wide range of tools in the region, as yet there is no international consensus regarding their effectiveness.

IV. Inflation performance in the Asia-Pacific region and future policy issues

Now, I would like to examine inflation performance in the region and touch on the future direction of monetary policy conduct.

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[6] See Andrew Filardo, "Ensuring Price Stability in Post-Crisis Asia: Lessons From the Recovery," *BIS Working Papers*, No. 378, 2012.

A. Performance of realized inflation and inflation expectations

The Asia-Pacific region shows a more moderate inflation compared with the 1990s. In recent years, inflation has declined somewhat in some of these economies owing to a decline in global energy prices, the slack in global economies, and weak domestic demand.

Inflation performance in the inflation-targeting economies

Regarding the inflation-targeting economies, realized inflation underwent an occasional large deviation from the inflation target range over the period (Chart 8). In New Zealand and Indonesia, the deviation tended to exceed the upper range of the target, suggesting the presence of high upward inflationary pressures. Australia, South Korea, and the Philippines experienced deviations both from the upper and lower ranges, while Thailand had few deviations except for some periods.

Since 2012, inflation in New Zealand and the Philippines has sometimes declined below the bottom of their respective target ranges, and inflation in South Korea has continued to stay below the bottom range of the target. By contrast, inflation in Indonesia has recently exceeded the upper range of the target – reflecting temporary factors such as a cut in fuel subsidies, upward inflationary pressures in food products, and new regulations related to imported foods. Some studies have pointed out that the inflation volatility in Indonesia further increased subsequent to the adoption of the inflation-targeting framework.[7] This is partly explained by the extensive use of administered prices to contain inflation prior to the adoption of the inflation-targeting framework. Overall, an examination of the six economies shows that inflation tends to eventually converge to the target range even after experiencing a deviation from it for some time (Chart 8).

To judge the progress in the monetary policy conduct under the inflation-targeting framework, one way is to examine whether their long-term inflation expectations have stabilized and remain within the inflation target range. In general, long-term inflation expectations (e.g., five years) have become more stabilized than short-term expectations (e.g., one year) for all six economies that adopt the framework (Chart 8). Short-term inflation expectations have been more volatile in general and often deviate from the target range since they tend to reflect global commodity and food prices as well as the prices of frequently-purchased goods and services.[8] Long-term inflation expectations have become stabilized at around 2–3 percent in Australia, New Zealand, South Korea, and Thailand. While inflation expectations of the first three economies remain within the target range, those of Thailand have risen moderately since 2010 and have slightly exceeded the upper range of the target since end-2010. Inflation expectations in the Philippines and Indonesia have been higher than in these four economies, but have stabilized at around 4 percent and around 5 percent, respectively, within the target range. Their relatively high inflation expectations may be due to a persistent supply shortage in foods, beverages, and energy. On the whole, the inflation-targeting economies appear to have succeeded in anchoring their inflation expectations. These results suggest that inflation tends to converge to the long-term inflation expectation level, so that any deviations from the target range are not sustained.

Another way to judge the effectiveness of the monetary policy conduct under the inflation-targeting framework is to examine whether a decline in *inflation persistence* (or the extent of dependence of current inflation on past inflation) is observed. Some studies point out that such declines are actually observed among five of the inflation-targeting economies (with the

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[7] Andrew Filardo and Hans Genberg, "Targeting Inflation in Asia and the Pacific: Lessons from the Recent Past," in The International Financial Crisis and Policy Challenges in Asia and the Pacific, BIS Papers, No. 52, 2010.

[8] See, for example, Jun Il Kim and Jungick Lee, "How Important Are Inflation Expectations in Driving Asian Inflation?" in *Globalisation and Inflation Dynamics in Asia and the Pacific*, *BIS Papers*, No. 70, 2013.

exception of Indonesia), compared with the 1990s. Such a decline in inflation persistence has not materialized for the non-inflation-targeting economies; hence, the results may imply the effectiveness of the inflation-targeting framework in the region. Other studies highlight that inflation persistence in Australia, New Zealand, and South Korea is lower than in the other inflation-targeting economies in the region, and that such low inflation persistence in these three countries could be attributable to the relatively large sizes of their economies, their relatively developed financial systems, and/or the high degree of policy priority given to price stability.[9]

Inflation performance in the non-inflation-targeting economies

Inflation performance has also improved in the non-inflation-targeting economies (Chart 8). China's inflation dropped drastically in the late 1990s, and has thereafter maintained a more stable level than previously. Malaysia's inflation performance has somewhat stabilized with the exception of the period immediately subsequent to the global financial crisis. The inflation environment became somewhat volatile in Singapore in the wake of the global financial crisis, shifting from low inflation or mild deflation to somewhat higher inflation.

Regarding long-term inflation expectations, in China these have stabilized at around 3 percent with both short- and long-term inflation expectations stabilizing and becoming closer in recent years. In Malaysia, long-term inflation expectations have stabilized at around 2–3 percent. Singapore's inflation has fluctuated somewhat largely, but its inflation expectations have remained stable at around 2 percent. The relatively stable inflation expectations of these economies may imply that their monetary policy conducts are placing a higher priority on price stability.

Differences between inflation-targeting and non-inflation-targeting economies

The six inflation-targeting economies regard short-term policy interest rates as their operational target for monetary policy. This is confirmed by the observation that the policy interest rates are relatively responsive to actual inflation developments (Chart 7). Nevertheless, the policy interest rates tend to remain low after the global financial crisis or during massive capital inflows. This may reflect the follow-the-leader price setting behavior mentioned earlier.

Meanwhile, China and Malaysia, the two non-inflation-targeting economies, also use short-term policy interest rates. However, these economies do not adjust their policy interest rates as frequently as inflation-targeting economies and therefore, such rates in these economies have remained flat. Thus, inflation and real policy interest rate movements frequently tend to exhibit an inverse movement like a mirror image. This may be because China and Malaysia also use various tools other than policy interest rates. For example, both countries often adjust the *reserve requirements* to control inflation, while China also uses window guidance, credit volume controls, and deposit-to-loan ratio requirements. The reserve requirement is regarded as a *liquidity-based measure* under macroprudential policy and is frequently used by many emerging economies as a counter-cyclical measure against business and financial cycles. Regardless of the measures used, all of the economies in the region have generally managed to stabilize long-term inflation expectations. Thus, it can be said that these economies have been more or less successful in terms of achieving price stability.

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[9] Stephan Gerlach and Peter Tillmann, "Inflation Targeting Matters in Asia," Column published on VoxEU.org, Centre for Economic Policy Research, 2010; Andrew Filardo and Hans Genberg, "Targeting Inflation in Asia and the Pacific: Lessons from the Recent Past," in *The International Financial Crisis and Policy Challenges in Asia and the Pacific*, *BIS Papers*, No. 52, 2010.

B. Future possible direction of monetary policy conduct

As mentioned earlier, one issue regarding monetary policy in the Asia-Pacific region is how to mitigate the business cycles that are amplified by the monetary policy conduct. Some of the monetary policy conduct of the region could occasionally be *pro-cyclical* – i.e., monetary policy strengthens economic cycles, with accommodative monetary policy during a period of capital inflows and high economic growth, and with tight monetary policy during a period of capital outflows and sluggish economic growth. This could possibly be a source of deviation from the inflation target for a longer period than anticipated.

As a potential way to address this problem, the inflation-targeting economies in the region may increasingly align their frameworks to those of advanced economies, in terms of target flexibility and design. In this regard, should they wish to consider a shift from an inflation target range to a target point, the experience of the United Kingdom could provide a useful guide.[10] The country shifted from a *target range* – which it had introduced in October 1992 – to a *target point* in 1995, primarily to eliminate any ambiguity relating to the inflation rate (and inflation expectations) at which a central bank should conduct monetary policy. There appeared to be a "range bias" in 1992–1995 when there was an inflation target range of 1–4 percent: inflation expectations derived from the yield curve were stuck at the top of the range. It appears that there were increasing concerns over a possible misunderstanding, as if policy makers considered any level within the range to be indifferent. After the shift to an inflation target point, inflation expectations fell steadily as range bias was ironed out.

New Zealand has already moved in this direction by emphasizing the midpoint of 2 percent in their inflation target range. Elements of an inflation-targeting framework, such as (1) whether the inflation target should be expressed in a target range or a target point, (2) whether the target should be reviewed relatively frequently or fixed, and (3) whether the inflation target is set to be achieved within a pre-fixed term or the (fixed) inflation target is set to be achieved over the medium term on average, should be determined by each economy based on their specific economic and financial market circumstances. Economies in the region may wish to consider whether the changes in their inflation-targeting framework design may lead to smaller and shorter deviations from the inflation targets and to more stable long-term inflation expectations. In this regard, the previous experience of the inflation-targeting economies in the region may provide a guide for the non-inflation-targeting economies to tackling the various issues they may face. These initiatives may require adjustments in the economy and the financial markets and thus will take some time. On this point, one of the key necessary adjustments includes development of hedging tools to deal with exchange rate fluctuations in the region, as well as of deeper financial and capital markets.

In addition, it has been pointed out that some economies in the Asia-Pacific region have reduced their vulnerabilities to exchange rate movements, and thus gradually mitigated their need to stabilize exchange rates.[11] Moreover, as the national income levels of these regional economies increase, the weight of consumption (particularly in services) rises, and thus these economies become less affected by exchange rate fluctuations. In some Asia-Pacific economies, an increasing number of firms and financial institutions are becoming multinationals. Firms and financial institutions are diversifying their settlement currencies for economic transactions and their funding sources, and are mitigating impacts from the exchange rate fluctuation. In such economies, price stability may be steadily achieved

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[10] See Andrew Haldane, "Targeting Inflation: The United Kingdom in Retrospect," a presentation made at the IMF Seminar held in Rio de Janeiro, Brazil on May 3–5, 1999. In the United Kingdom, moreover, not reaching the 2 percent target is considered to be equally as bad as exceeding the target, and in cases where the actual inflation is not in the 1–3 percent range, the Governor of the BOE must send a public letter to the Chancellor of Exchequer to explain the reason and to give the planned means of addressing the situation.

[11] See, for example, Michael B. Devereux and James Yetman, "Globalisation, Pass-Through and the Optimal Policy Response to Exchange Rates," *BIS Working Papers*, No. 450, 2014.

through reviewing their inflation-targeting framework based on the accumulated lessons of other economies.

V. Conclusions on the monetary policy conduct in the Asia-Pacific region

Let me now summarize my views on the monetary policy conduct in the Asia-Pacific region.

- First, central banks of the region have focused more on price stability than on exchange rate stability in the aftermath of the East Asian economic crisis. Specifically, six central banks took the lead on this by adopting an inflation-targeting framework with a clear numerical inflation target. The realized inflation and inflation expectations of these economies have gradually shown a downward trend in line with their targets compared with the 1990s. While there are occasional large deviations from the inflation target range, these have not been sustained for a long period. This suggests that inflation has a tendency to converge to the long-term inflation expectation level, which has remained largely within their target ranges. In most economies, their long-term inflation expectations appear to be converging to around 2–3 percent.
- Overall, the monetary policy conduct in the region shows some degree of convergence, and increasingly entails the elements commonly observed in advanced economies. Going forward, the region's inflation-targeting economies may possibly share more common features with advanced economies through further alignments. The design of an inflation-targeting framework, such as (1) whether the inflation target should be expressed in a target range or a target point, (2) whether the target should be reviewed relatively frequently or fixed, or (3) whether the inflation target is set to be achieved within a pre-fixed term or over the medium term on average, should be determined by each economy based on its specific economic and financial market circumstances. Nevertheless, the experiences accumulated in other economies may provide some useful guidelines.
- Second, the region allows greater exchange rate movements compared with the 1990s. However, the degree of flexibility varies widely -- ranging from *free floating* to a *de facto exchange rate anchor to the U.S. dollar*. Like many non-inflation-targeting economies, some inflation-targeting economies continue to intervene in the foreign exchange market.
- Third, the region often faces large capital inflows partly owing to the interest rate differentials. Developments in domestic bond markets have generated many benefits for the region, but have also enhanced linkages with global financial and bond markets, thereby inducing changes in capital flows. The resultant greater volatility of exchange rates and overvaluation of the currency, and their adverse impacts on the economy have been pointed out as serious concerns. As a result, some economies occasionally set a low policy interest rate in response to a decline in the global interest rate.
- This, however, might lead to a greater positive output gap in the economic expansionary phase, thereby overheating the economy and promoting rapid credit growth and increasing inflationary pressures. This may not only amplify the boom-bust business and financial cycles, but also deteriorate the current account balance. It may also incur the risk of undermining a central bank's credibility by failing to fulfill its price stability mandate in the inflation-targeting economies. Going forward, economies in the region may need to prepare for more volatile interest rate movements in the face of global interest rate hikes as the global economy gradually recovers. This in turn may provide these economies with more room to conduct an independent monetary policy.

- Fourth, to cope with excessive capital flows and associated accumulation of financial imbalances, economies in the region frequently use a wide range of macroprudential policy measures. Their effectiveness depends largely on country-specific economic and financial market circumstances. Questions such as what macroprudential measures should be taken to cope with financial imbalances, or what is the correct balance between macroprudential policy and monetary policy, remain unsettled, and an international consensus has not yet been formed.
- Going forward, further discussions are expected among central banks, regulatory institutions, and other policy makers on the issue of how to achieve price stability, sustainable economic growth, and financial stability. I hope that such discussions, through sharing each other's experiences and lessons learnt from the past, will lead to some useful insights into monetary policy conduct implications.

This concudes my speech. Thank you very much for your kind attention.

Chart 1

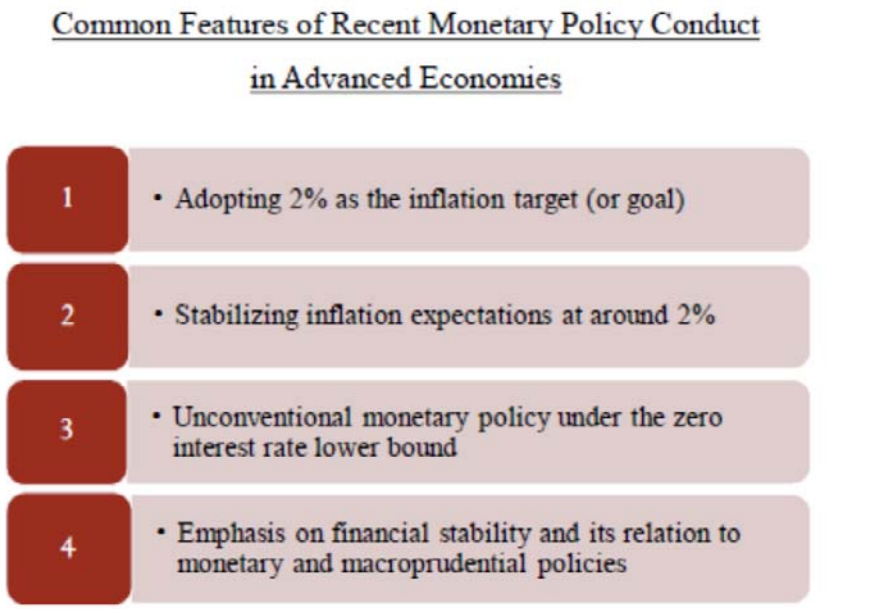
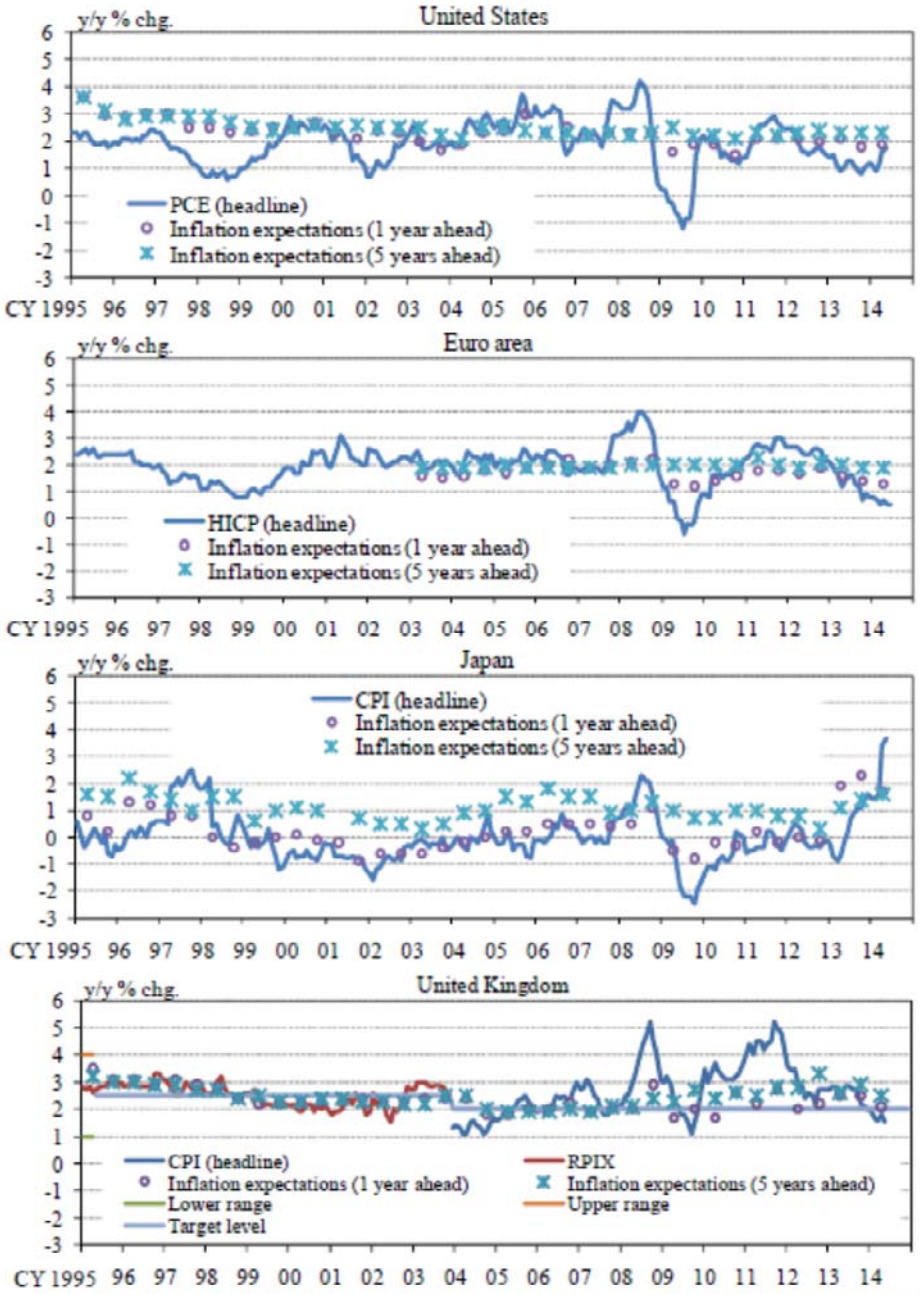


Chart 2

Realized Inflation and Inflation Expectations in Advanced Economies



Note: The RPIX refers to the Retail Prices Index excluding mortgage interest payments, which was used as the target index until November 2003. The target level between May 1995 and April 1997 was 2.5 percent or below.

Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

Chart 3

Current Unconventional Monetary Policy in Advanced Economies

	FRB	ECB	BOE	BOJ
Large-scale asset purchases	○		○	○
Forward guidance	○	○	○	○
Longer-term liquidity provision		○		○
Long-term conditional lending		○	○	○
Negative interest rate on reserves		○		

Sources: Federal Reserve; European Central Bank; Bank of England; Bank of Japan.

Chart 4

Classification of Exchange Rate Arrangements and Monetary Policy Frameworks

	Monetary policy framework			
Exchange rate arrangement	Inflation targeting	Monetary aggregate target	Exchange rate anchor	Other
Free floating	Australia, Japan, United Kingdom			United States, Euro area
Floating	New Zealand, Philippines, South Korea, Thailand			
Other managed arrangement				Malaysia
Crawl-like arrangement	Indonesia (maintains a *de facto* exchange rate anchor to the U.S. dollar)	China (maintains a *de facto* exchange rate anchor to the U.S. dollar)	Singapore (maintains a *de facto* exchange rate anchor to a composite)	

Source: International Monetary Fund.

Chart 5

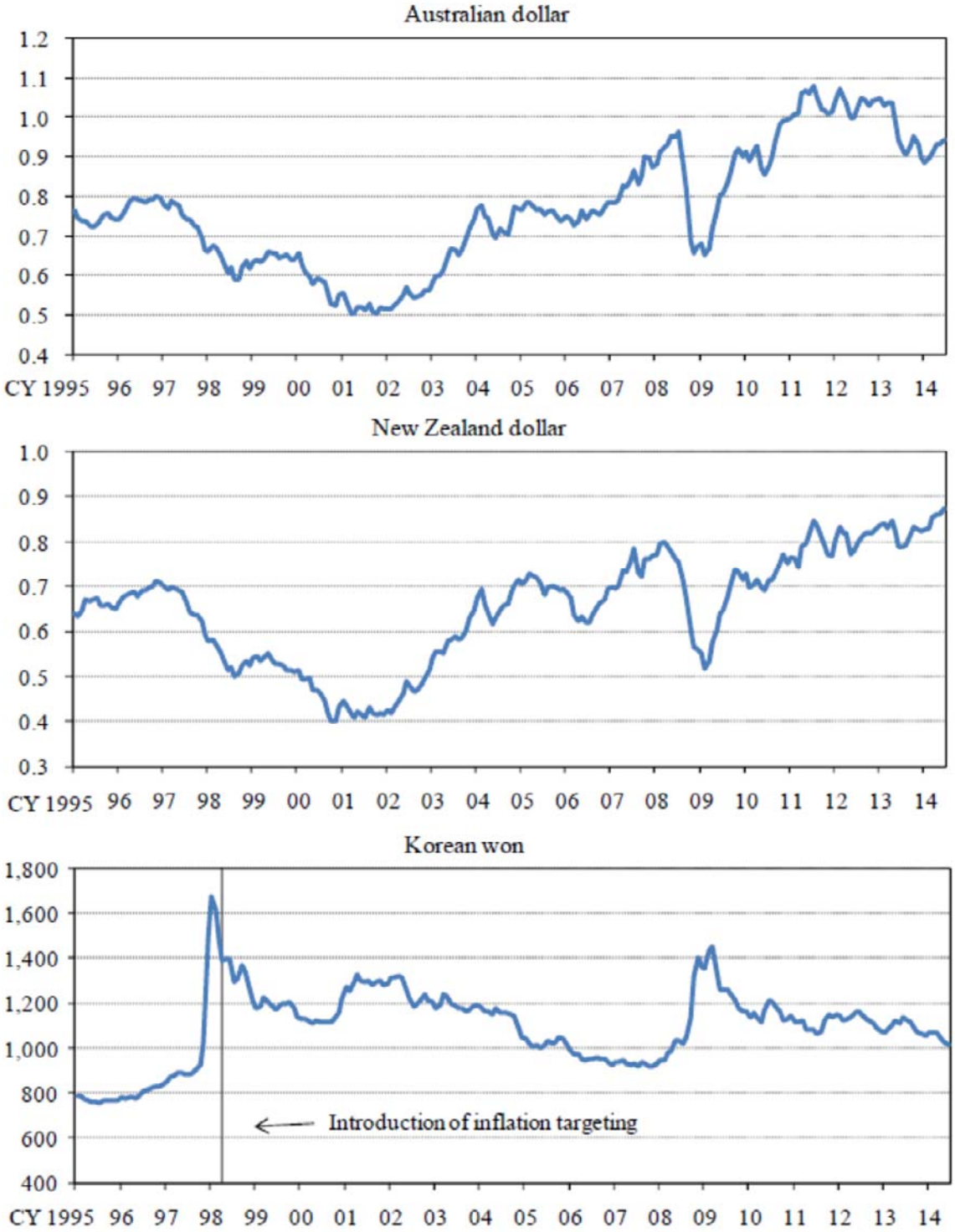
Inflation Targets and Definitions

	Inflation target	Introduction year	Reference indicator	Numerical value	Duration to achieve the target	Target variability
United States	Long-run goal	2012	Headline PCE	2%	Long term	Fixed
Euro area	Definition of price stability	1998	Headline HICP	Below but close to 2%	Medium term	Fixed
Japan	Price stability target	2013	Headline CPI	2%	Medium to long term	Fixed
United Kingdom	Inflation target	1992	Headline CPI	2%	Reasonable time	Fixed
Australia	Inflation target	1993	Headline CPI	2-3%	Medium term	Fixed
New Zealand	Inflation target	1988	Headline CPI	1-3% (with a focus on 2% target midpoint)	Medium term	Fixed
South Korea	Inflation target	1998	Headline CPI	2.5-3.5% for 2013-15	Pre-fixed term	Adjusted every few years
Indonesia	Inflation target	2000	Headline CPI	4.5% ± 1% for 2012-14 and 4% ± 1% for 2015	Pre-fixed term	Adjusted every few years
Thailand	Inflation target	2000	Core CPI	0.5-3%	Annual	Adjusted annually
Philippines	Inflation target	2002	Headline CPI	4% ± 1% for 2011-14 and 3% ± 1% for 2015-16	Pre-fixed term	Adjusted every few years
China	Annual target	n.a.	Headline CPI	3.5% for 2014	Annual	Adjusted annually

Source: Each central bank.

Chart 6-1

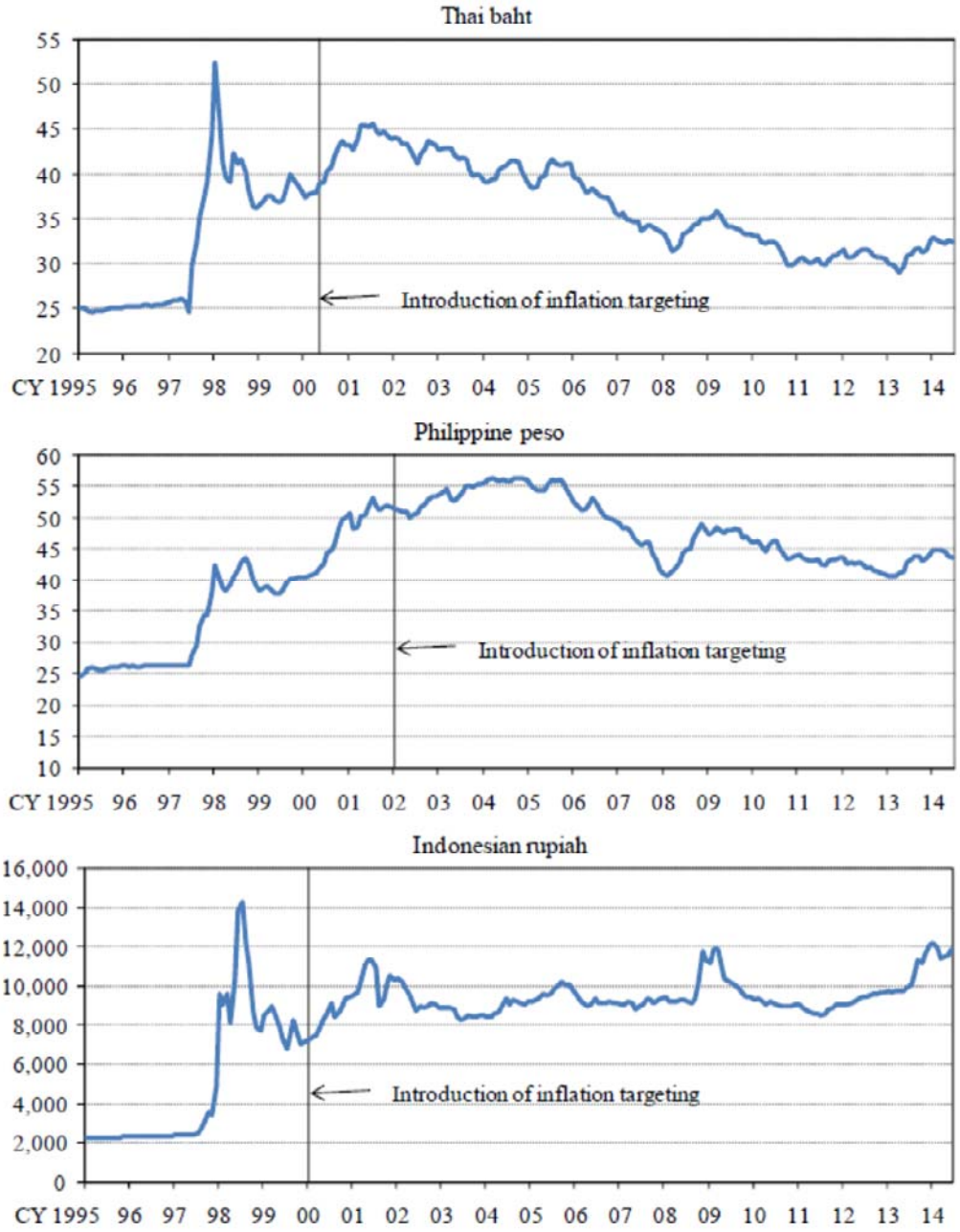
Exchange Rates against the U.S. Dollar (1)



Source: Bloomberg.

Chart 6-2

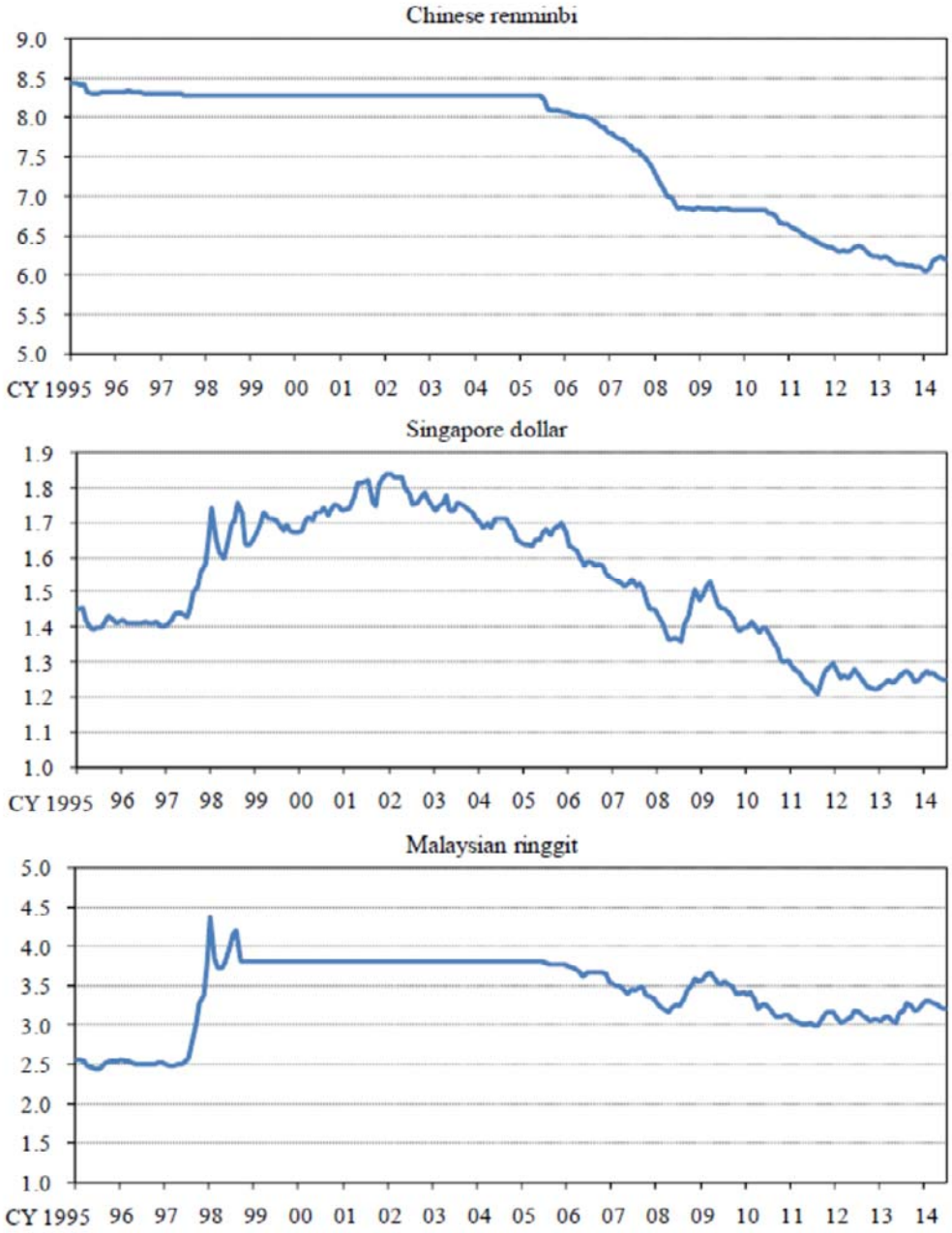
Exchange Rates against the U.S. Dollar (2)



Source: Bloomberg.

Chart 6-3

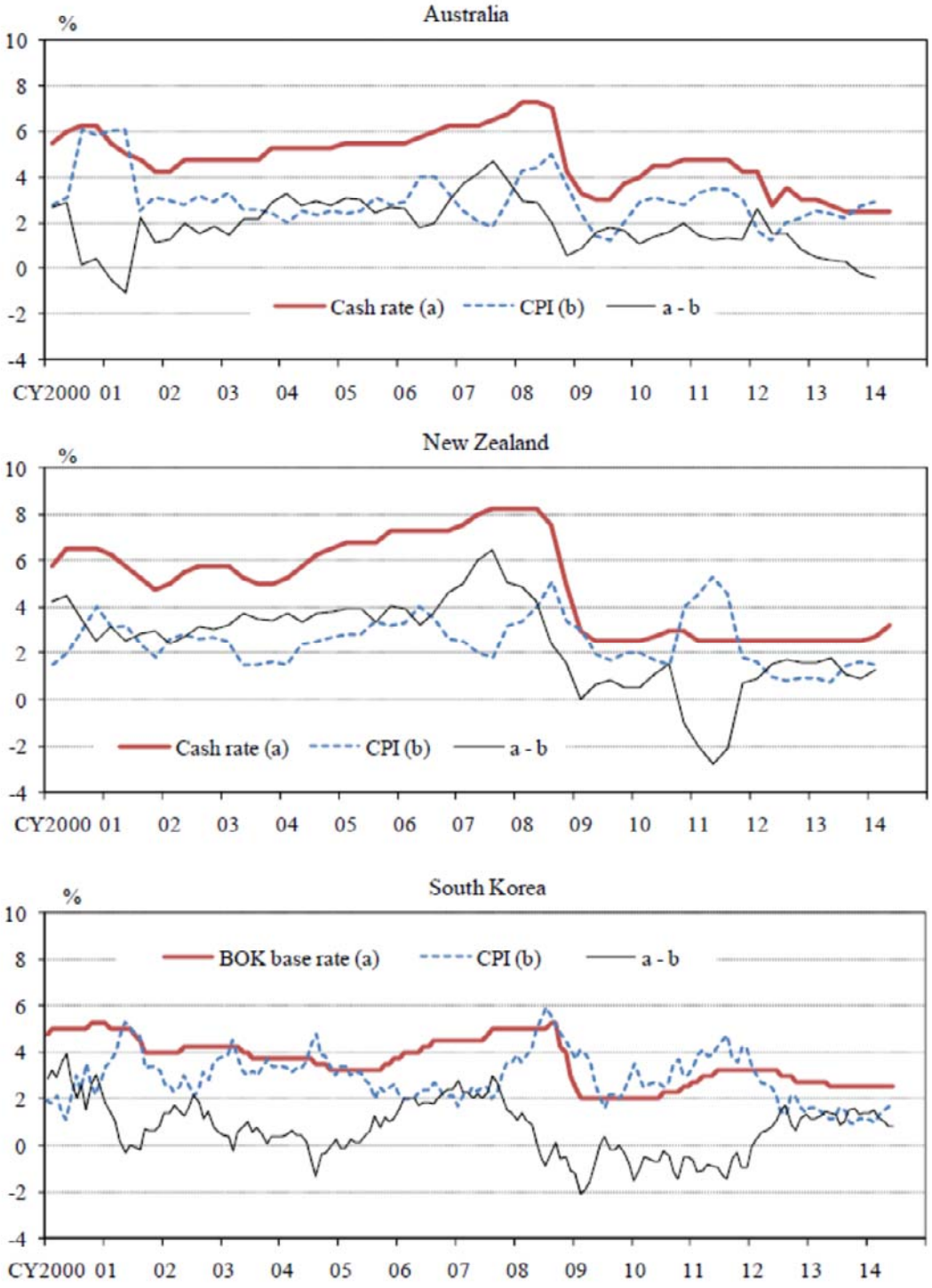
Exchange Rates against the U.S. Dollar (3)



Source: Bloomberg.

Chart 7-1

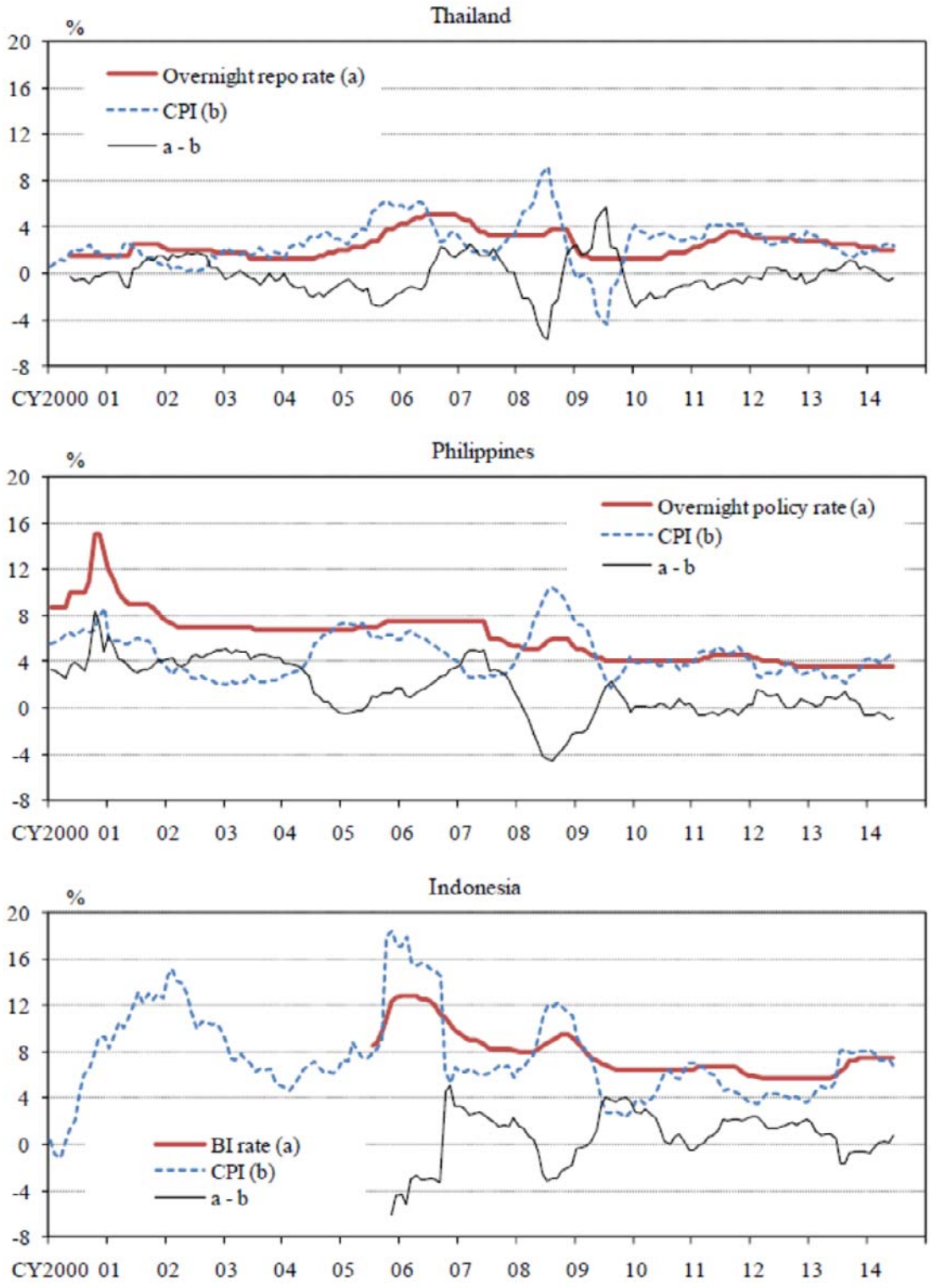
Inflation Rates and Policy Interest Rates in the Asia-Pacific Region (1)



Source: Bloomberg.

Chart 7-2

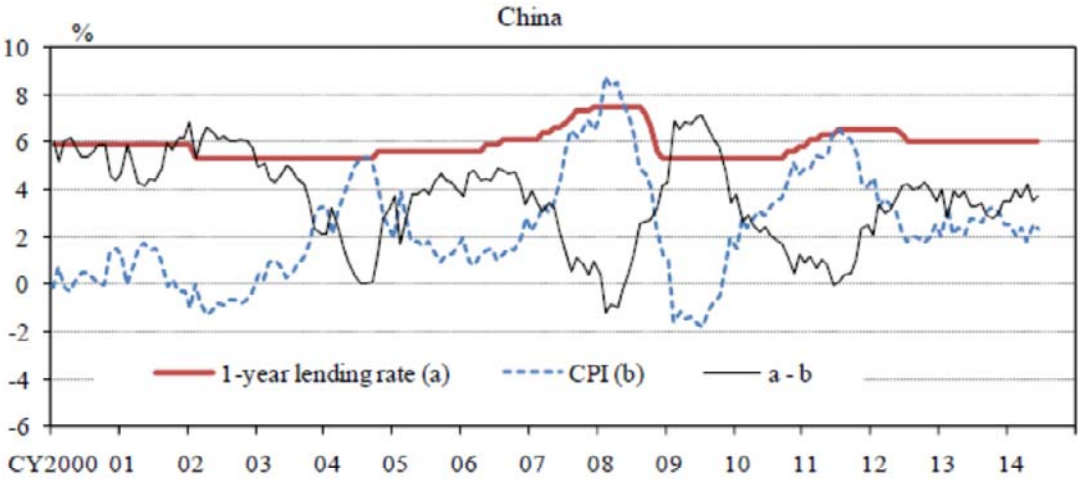
Inflation Rates and Policy Interest Rates in the Asia-Pacific Region (2)

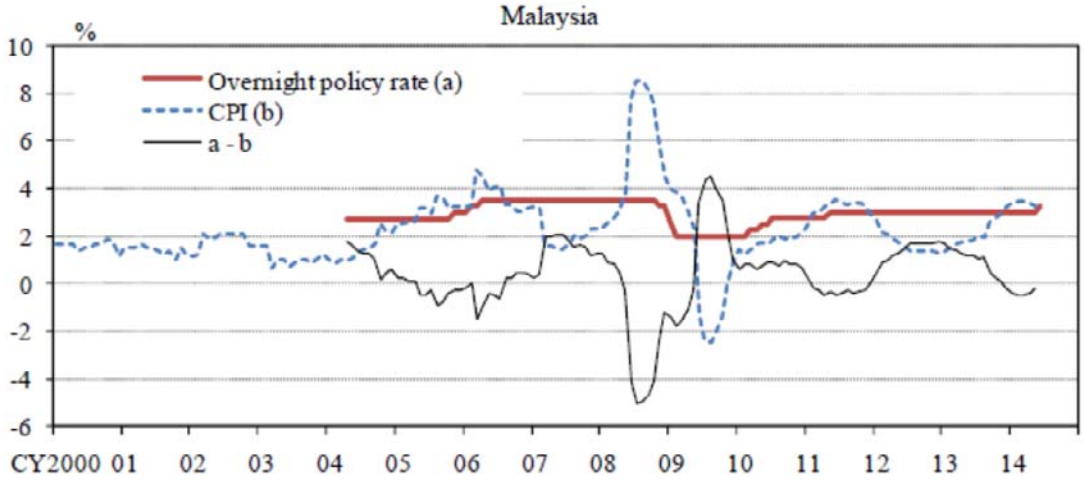


Source: Bloomberg.

Chart 7-3

Inflation Rates and Policy Interest Rates in the Asia-Pacific Region (3)

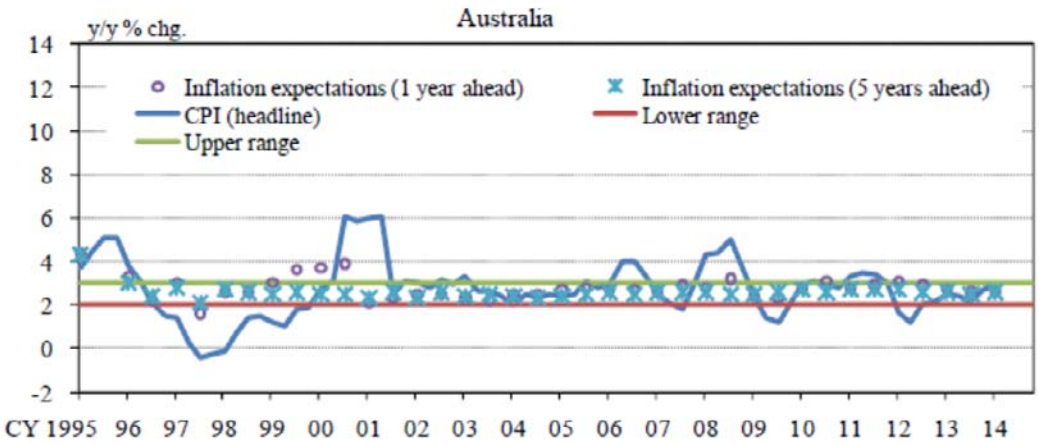


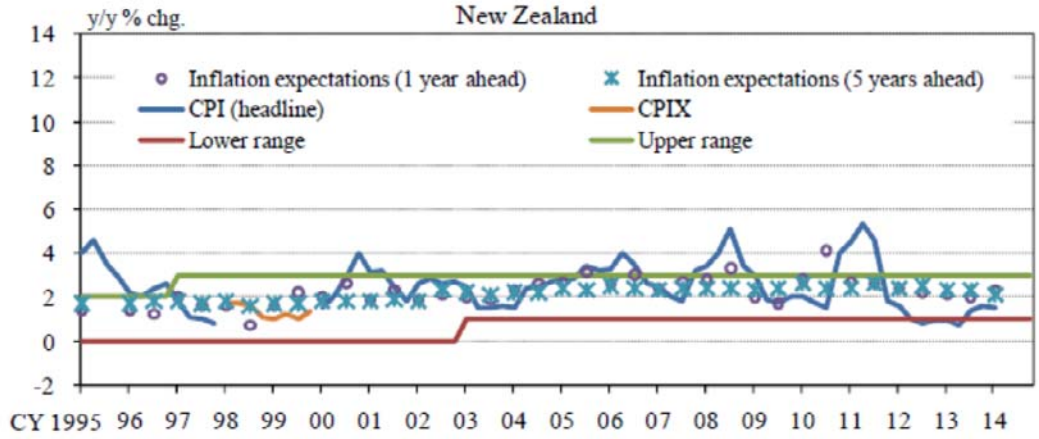


Source: Bloomberg.

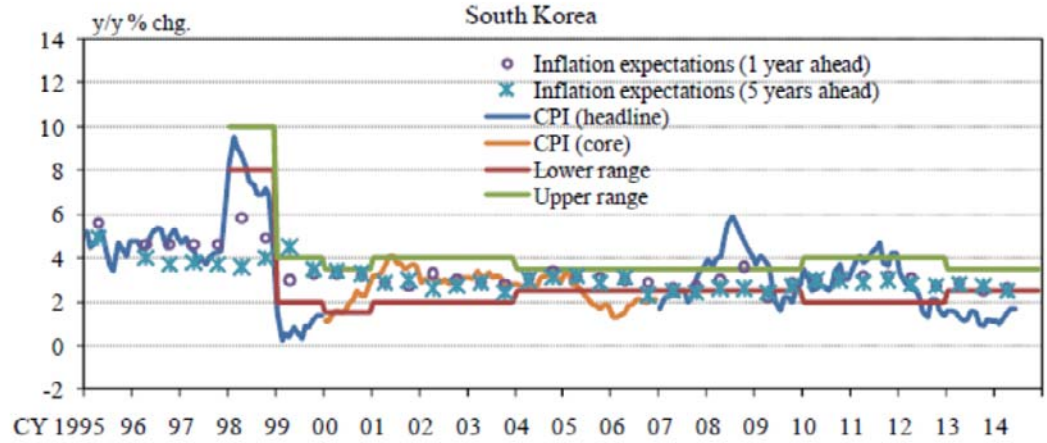
Chart 8-1

Realized Inflation and Inflation Expectations in the Asia-Pacific Region (1)





Note: The target index is the headline CPI except for 1998 and 1999, when the CPIX (CPI excluding credit services) was used.

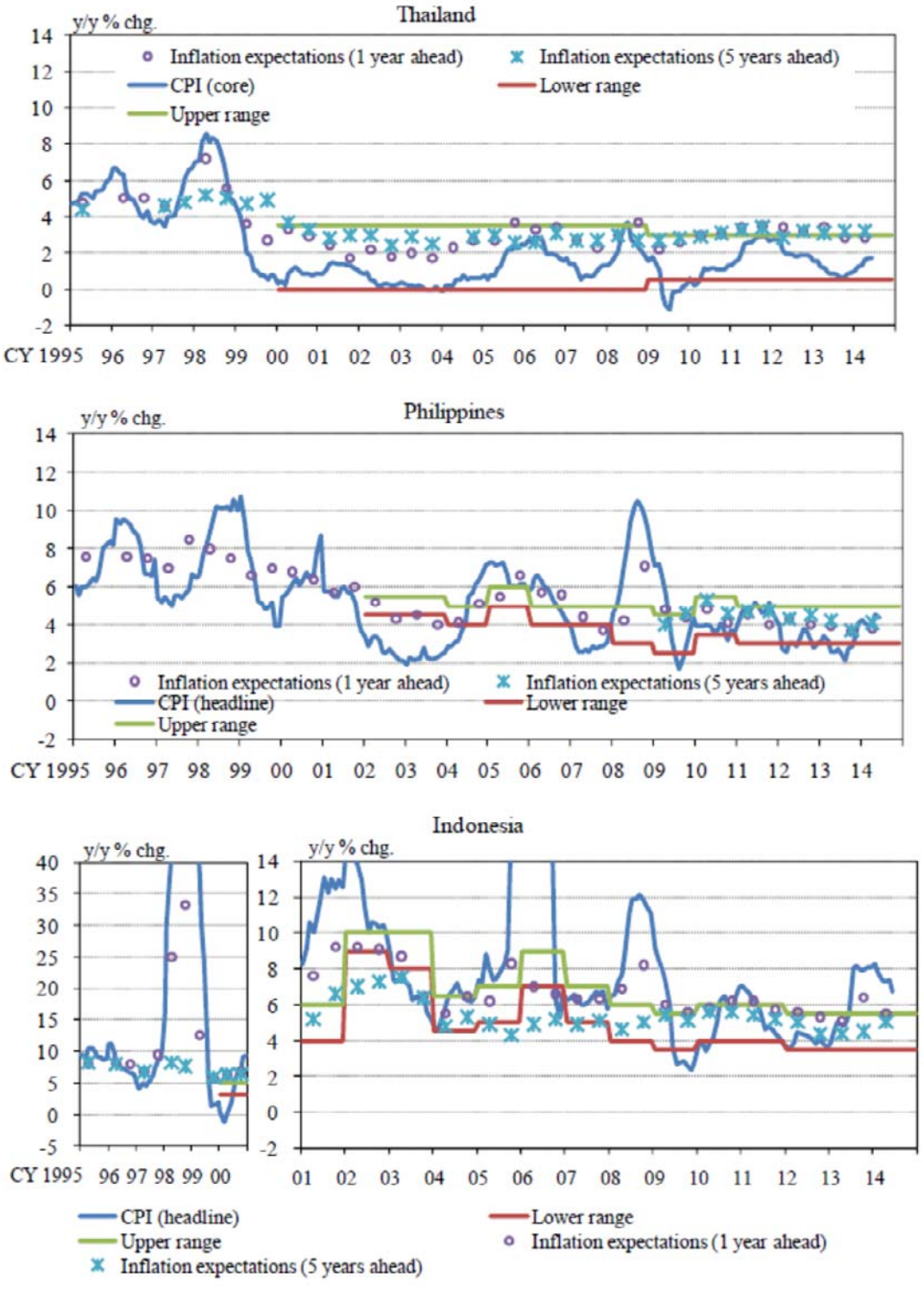


Note: The target index is the headline CPI except for the period from 2000 to 2006, when the core CPI was used.

Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

Chart 8-2

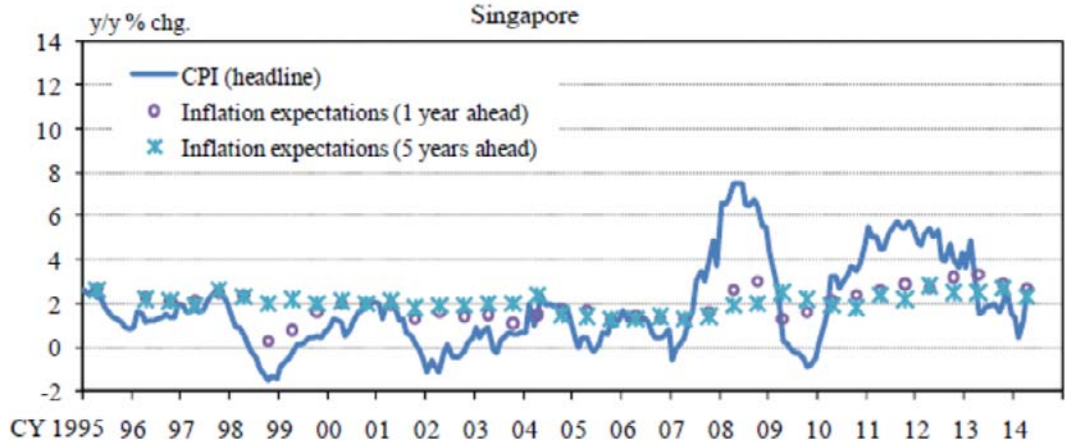
Realized Inflation and Inflation Expectations in the Asia-Pacific Region (2)

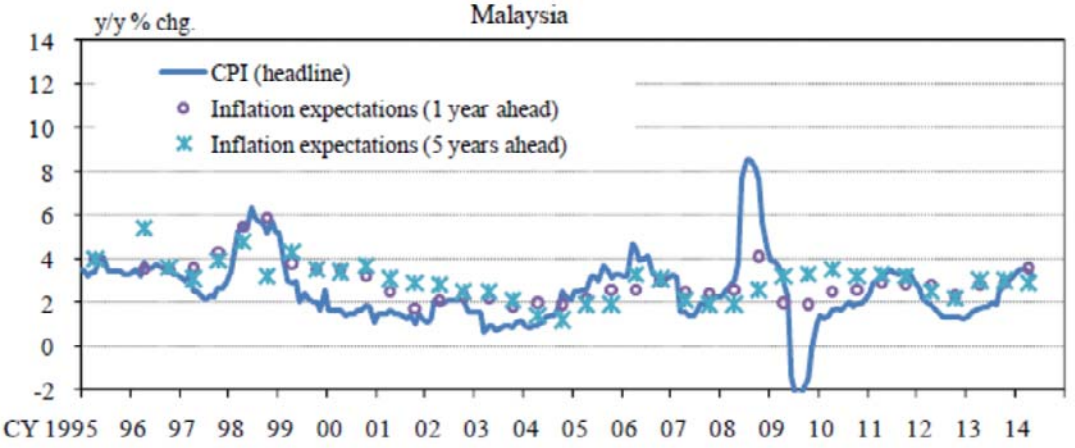


Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

Chart 8-3

Realized Inflation and Inflation Expectations in the Asia-Pacific Region (3)





Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."