

Inflation mechanisms, expectations and monetary policy in Indonesia¹

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Abstract

Indonesia has been experiencing relatively low and stable inflation for the last five years. Currently, inflation has switched to a low inflation regime, thanks mainly to better anchored inflation expectations owing to the more credible inflation targeting framework (ITF) adopted in July 2005. Nevertheless, building and maintaining credibility remain the key challenge, as credibility affects the behaviour of economic agents and anchors expectations. Further, the post-Global Financial Crisis monetary policy framework in Indonesia is characterised by the flexible ITF.

Keywords: Inflation, monetary policy, flexible ITF

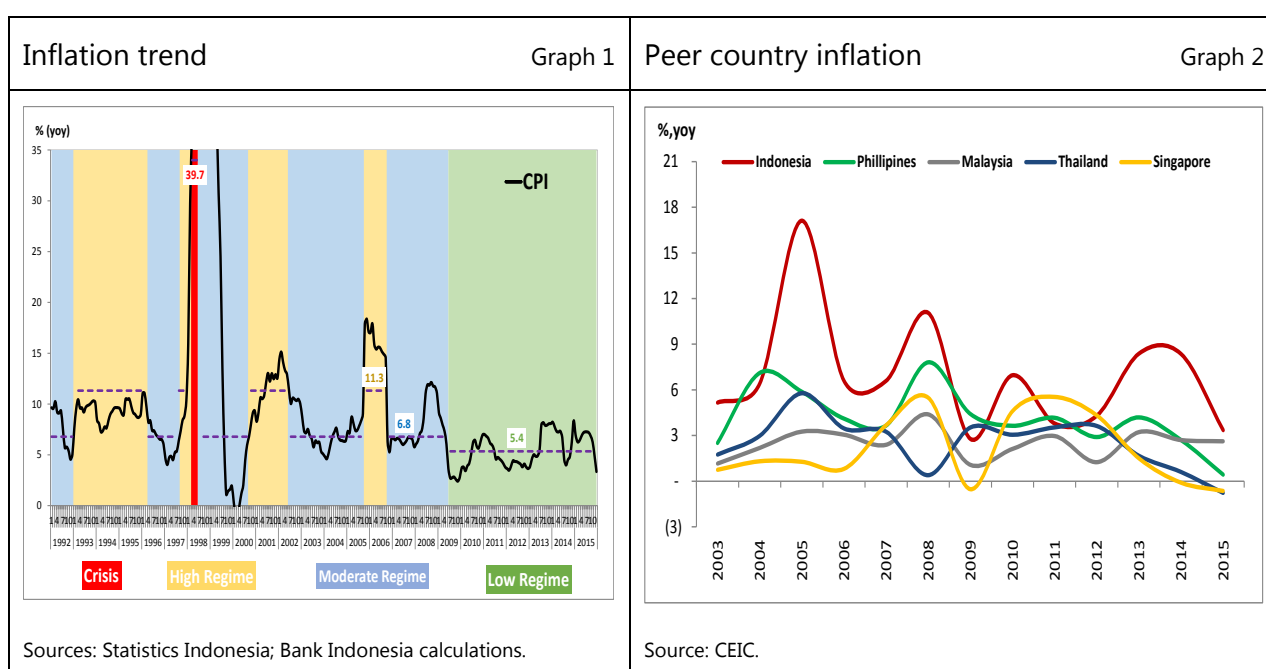
JEL classification: E31, E52

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1. Introduction

Two major issues in modern central banking are the role of inflation expectations and the conduct of the monetary policy in the aftermath of global financial crisis (GFC). Keeping inflation expectations low and stable makes the economy more resilient in the face of adverse shocks and allows the economy's pricing mechanism to function more efficiently, for example as reflected in the dynamics of exchange rate pass-through. Anchoring inflation expectations requires that the central bank be regarded as credible. However, the challenges for building credibility in the aftermath of the GFC are greater, and there is an ongoing debate on whether monetary policy should incorporate financial stability as macroeconomic stability frequently stems from instability in the financial sector.



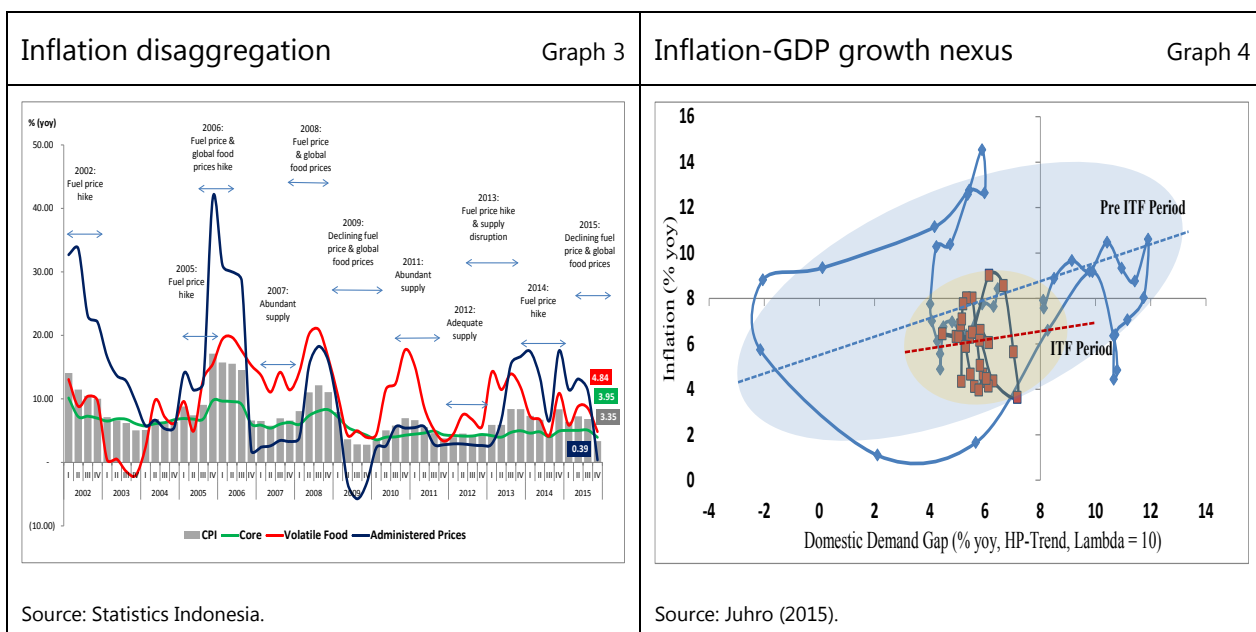
This paper briefly discusses the two issues mentioned above for the case of Indonesia. Indonesia has been experiencing relatively low and stable inflation for the last five years. Recently, inflation has switched to a low inflation regime, averaging around 5.4% year over year (Graph 1). One key factor has been better anchored inflation expectations owing to the more credible inflation targeting framework (ITF) adopted in July 2005. Despite several significant improvements since the adoption of the ITF, there are still some challenges. For instance, average inflation is still high relative to peer countries (Graph 2) and compared to the official inflation target.³ Hence, the key challenge remains how to build and maintain credibility, as credibility affects the behaviour of economic agents and anchors expectations. The post-GFC monetary policy framework in Indonesia is characterised by the Flexible ITF (see eg Juhro and Goeltom (2015)). The ITF is implemented in a more flexible manner, in the sense that Bank Indonesia must not only look at the inflation target merely in terms of policy formulation but also consider a number of other factors, including

³ The official inflation targets are 4±1% for 2016–17 and 3.5±1% for 2018.

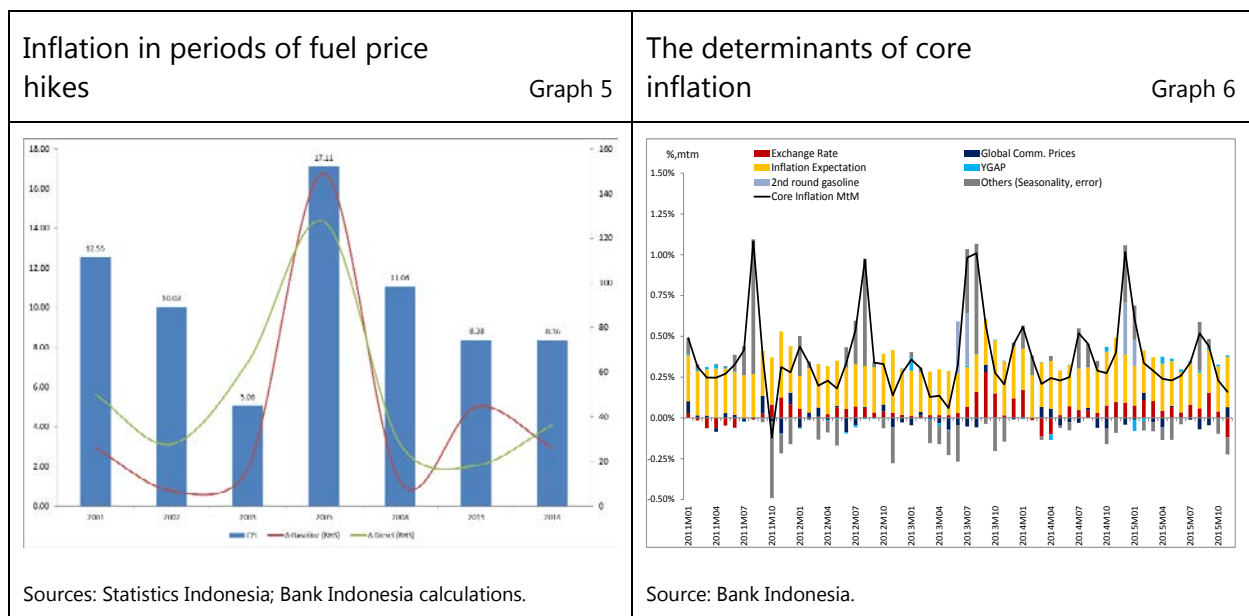
financial sector stability as well as the dynamics of capital flows and exchange rate. The paper proceeds as follows. Section 2 offers a brief summary of the main characteristics of inflation in Indonesia. Sections 3 and 4 discuss inflation expectations and the dynamics of exchange rate pass-through. The recent development of monetary policy in Indonesia will be presented in the final section.

2. Characteristics of inflation in Indonesia

In Indonesia, inflation is measured as changes in the consumer price index (CPI) published by the Central Agency on Statistics (Statistics Indonesia). Further, headline CPI inflation is disaggregated into three components (Graph 3): core inflation, volatile food and administered prices. Core inflation is the persistent component within inflation movement, influenced by fundamentals such as supply and demand interaction, whereas the volatile food component is inflation predominantly influenced by shocks in the foodstuffs category, such as harvests, disruptions from natural events or movements in domestic food commodity prices and international food commodity prices. The administered prices component is inflation predominantly influenced by shocks from government-announced prices, such as for subsidised fuels, electricity billing rates and transport fares. In particular, core inflation (which consists of 751 commodities) accounts for 65% of headline inflation, whereas volatile food (85 commodities) and administered prices (23 commodities) account for 17% and 18% of headline inflation, respectively. In general, inflation in Indonesia arises from demand and supply shocks and inflation expectations. The pressure from the demand side has been relatively moderate recently, especially as economic growth slowed to around 5% in 2015 from 6% in 2011. Several indicators confirm the relatively weak demand pressure, such as the negative output gap, the declining credit growth rate and stagnant retail sales. Further, there is an indication that inflation is less responsive to domestic demand. It appears that the stability-growth nexus during the ITF period has weakened, reflected by an apparent flattening of the Phillips curve, as can be seen in Graph 4 (Juhro (2015)).



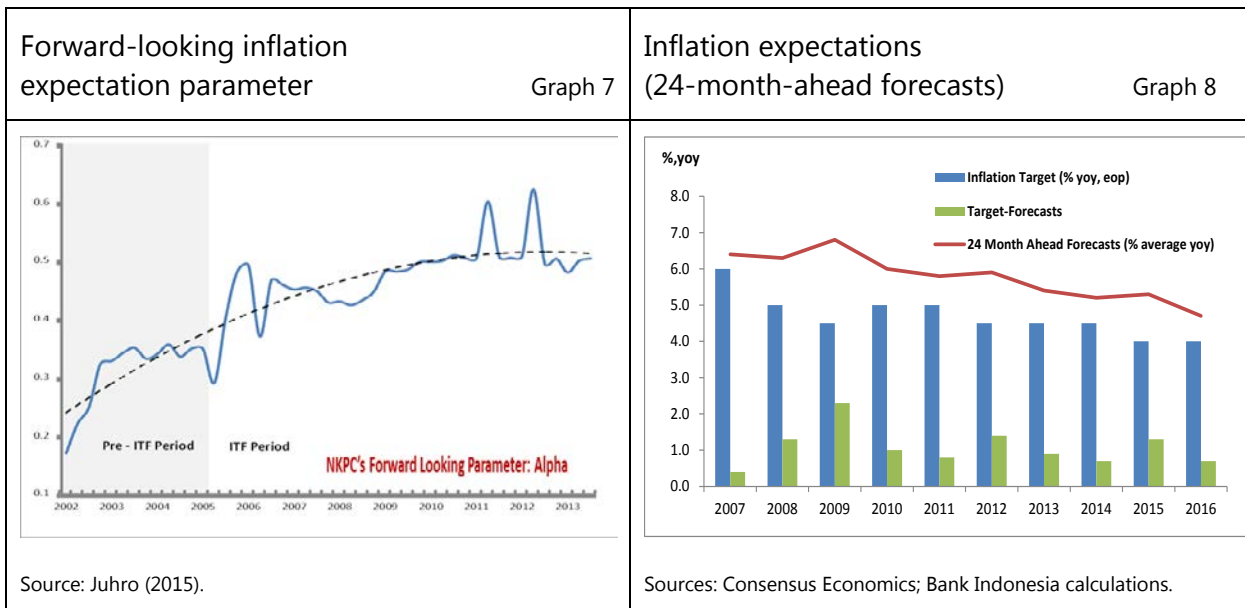
Inflation is under pressure from supply side shocks such as changes in administered prices, negative supply shocks to food production due to natural disasters and disruptions in distribution networks, and the sharp depreciation of the exchange rate. As can be seen in Graph 3, the peaks in Indonesia’s inflation are often associated with administered prices and volatile food dynamics. The high pressure from administered prices is related to the energy subsidy reforms covering fuel prices, electricity tariffs and liquefied petroleum gas (LPG). The rise in administered prices had a marginal impact on inflation in 2013 and 2014 that was kept to single digits in the context of a tight bias in monetary policy and productive policy coordination between the central bank and the government. Bank Indonesia’s bias towards a tight monetary policy proved able to rein in inflation expectations (see below) following the hike in subsidised fuel prices. On the government side, the policies for curbing the second-round effects of the fuel price hike involved restrictions on fare increases for land-based transportation and preparation of social safety nets. Looking forward, the energy subsidy reforms adopted by the government are expected to lay the foundation for more robust control of inflation.



3. Inflation expectations

Inflation expectations play an important role in the conduct of monetary policy. For example, price adjustments made by economic agents in each period mainly depend on the inflation that is expected in future periods. In particular, the New Keynesian Phillips curve emphasises the importance of inflation expectations for the rate of actual inflation. Hence, central banks’ ability to achieve price stability is often directly linked to their ability to anchor inflation expectations at their target. In a situation where inflation expectations are well anchored, the higher the forward-looking component the smaller the costs of disinflation. Therefore, understanding whether inflation expectations are anchored is important. Investigating movements in longer-term measures of inflation expectations – beyond the horizon where persistent shocks might have a measureable effect – may be more informative when assessing the

degree of anchoring of inflation expectations. In practice, inflation expectations are well anchored if the distance between the expectations and the inflation target is sufficiently small.



Inflation expectations contribute significantly to the dynamics of core inflation in Indonesia (Graph 6).⁴ Further, as argued by Juhro (2015), there is an indication that the weight of the forward-looking component of inflation expectations increases over time (Graph 7). However, the empirical evidence of the anchoring of inflation expectations for Indonesia is still limited. In order to gauge whether inflation expectations are anchored, Bank Indonesia monitors both short-term (three- and six-month) and longer-term (one- and two-year) indicators across different economic agents (such as professional forecasters, consumers and producers). From the longer-term perspective, as can be seen in Graph 8, inflation expectations – as measured by two-year-ahead inflation forecasts published by Consensus Economics – have been trending downwards over time (from 6.4% (average year over year) for 2007 to 4.7% (average year over year) for 2016). Even though there are still discrepancies between long-term inflation two years ahead forecasts and the official inflation target, in general there is a co-movement between them. This suggests that the presence of a formal inflation target has helped to anchor inflation expectations. The lower inflation expectations anchor in recent years is also observed in other countries and is not limited to inflation targeting economies; however, the level at which inflation has been anchored has declined by more over time for inflation targeting economies than for others (Mehrotra and Yetman (2014); Mishkin and Schmidt-Hebbel (2007)). Further, when the public has better information about the true intentions and inflation fighting goals of the central bank they are less likely to change their expectations about future inflation following a transitory shock to observed inflation (Davis

⁴ The decompositions are based on the following equation:

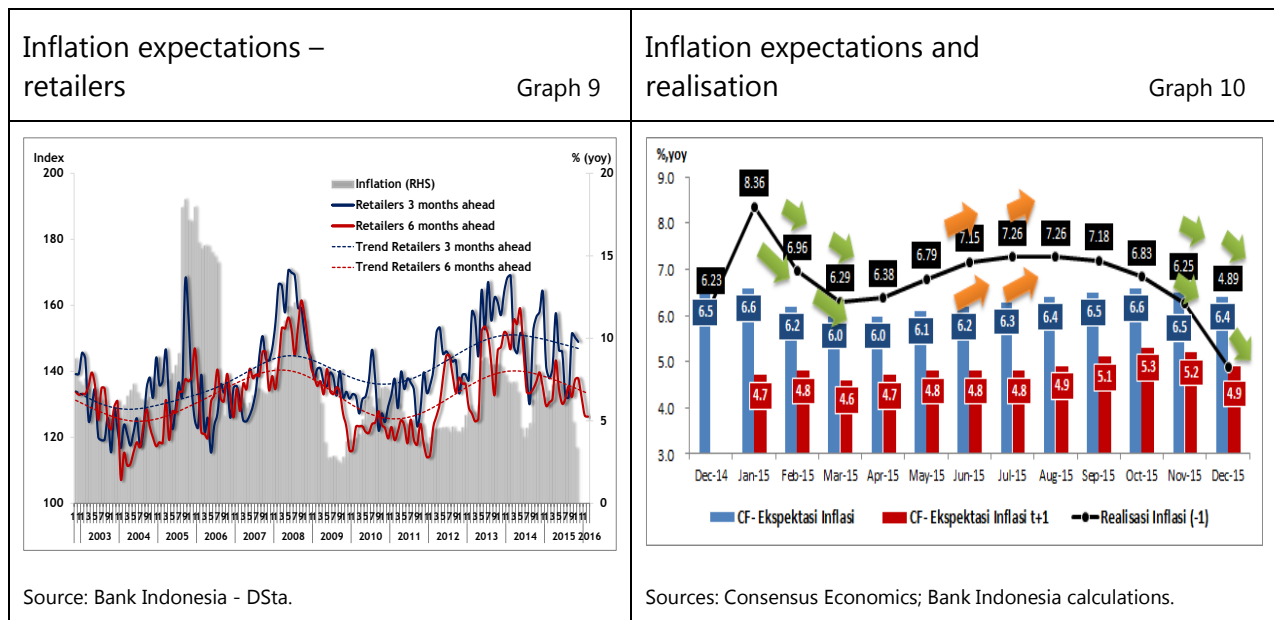
$$\pi_{core_t} = C + \sum_{i=1}^n \alpha_i \pi_{core_{t-i}} + \omega \cdot \pi^e + \sum_{i=0}^n \beta_i (demand)_{t-i} + \sum_{i=0}^n \gamma_i (Exchange Rate)_{t-i} + \sum_{i=1}^n \theta_i (Import Price)_{t-i} + \sum_{i=1}^n \rho_i Dummy_i + \varepsilon_t$$

(2014b)). Hence, the subdued longer-term inflation expectations in Indonesia, to some extent, are due to the adoption of the ITF since July 2005.

In terms of short-term inflation expectations, we can also see similar results that expectations are trending down. The survey at the retailer level – both three and six months ahead – shows that inflation expectations have been declining recently (Graph 9). Specifically, there is an indication that the sensitivity of inflation expectations to the latest (November 2014) fuel prices increase has declined. Furthermore, the shorter the forecast horizon, the more inflation expectations are affected by actual inflation and current shocks (Graph 10).⁵

In order to better understand and monitor inflation expectations, Bank Indonesia has been conducting a pilot project to measure inflation expectations based on surveys of different economic agents (producers, consumers, firms and economists) which also cover various horizons (both fixed event and fixed horizon forecasts). For example, the consumer expectations are the highest among economic agents (10.9%), whereas retailers', firms' and economists' expectations are 5.6%, 7.3% and 5.5%, respectively. Economists' expectations are the lowest and closer to inflation target as they have more information relative to the other economic agents, whereas awareness of consumer respondents to the inflation target is relatively low and they tend to monitor the prices of basic needs which are closely related to the dynamics of volatile food inflation.

Overall, better anchored inflation expectations, to some extent, minimise the impact of supply shocks (Graph 5) and allows the economy's pricing system to function more efficiently. This is reflected, for example, in the lower pass-through of the exchange rate.

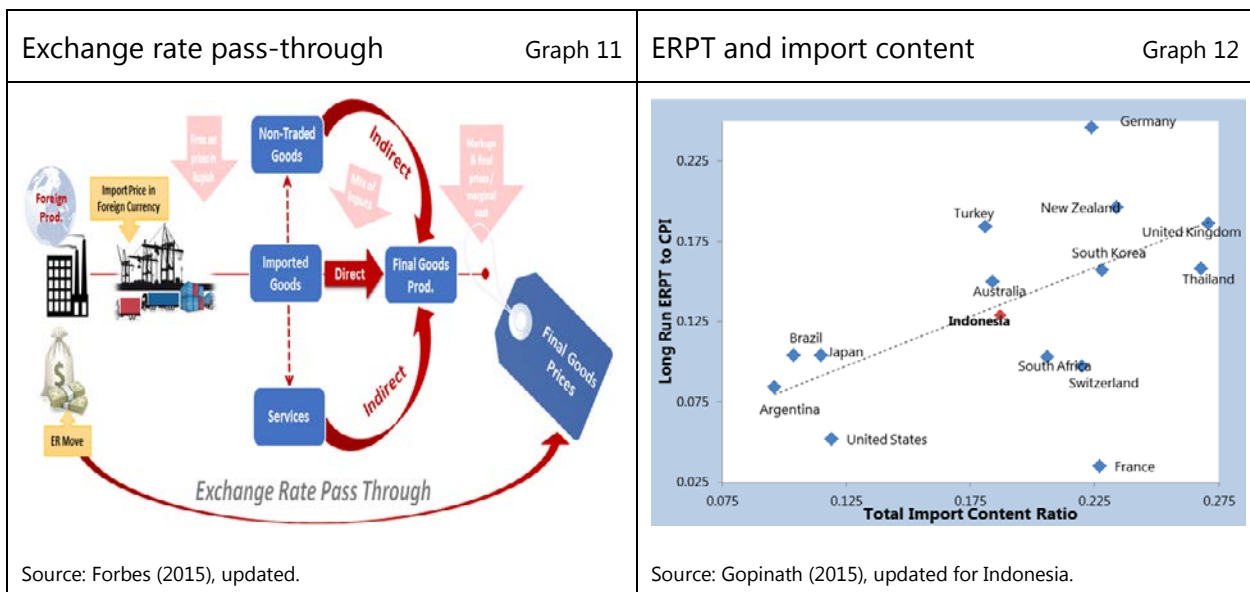


⁵ Mehrotra and Yetman (2014) argue that as the horizon shortens, there is greater weight on realised outcomes and less on the lung-run anchor. When the horizon becomes very short, inflation expectations are driven almost entirely by actual inflation.

4. Exchange rate pass-through

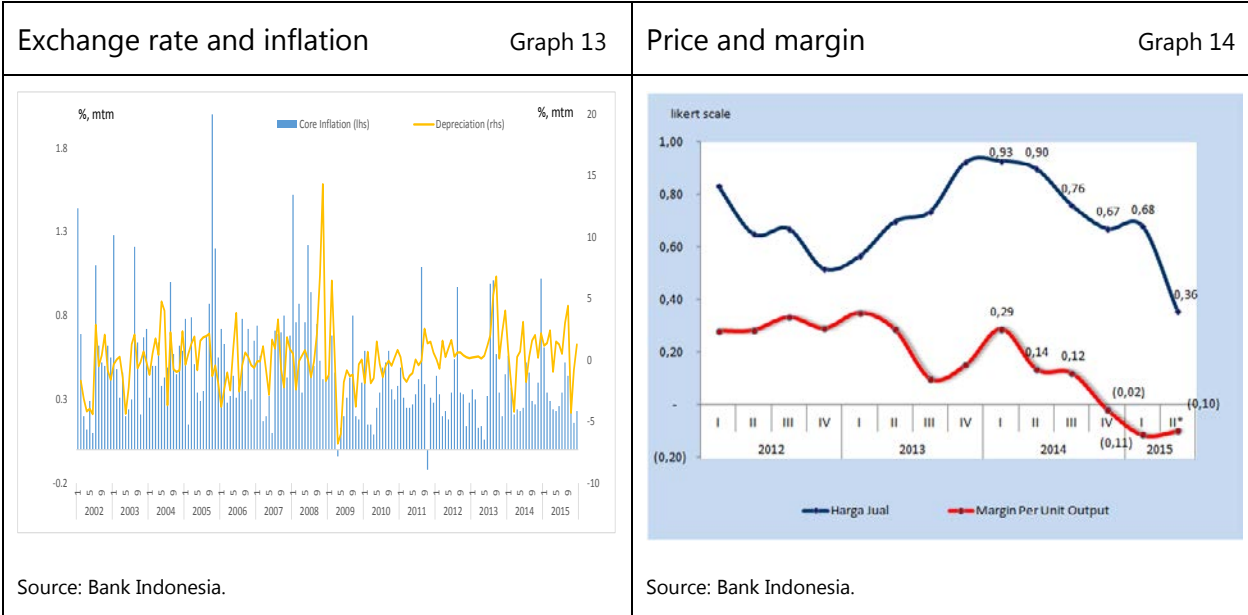
The exchange rate is an essential component of the transmission mechanism of monetary policy in a small open economy adopting a flexible exchange rate system, like Indonesia. The dynamic of the exchange rate affects the target variables of monetary policy, such as inflation and the output gap, through a variety of channels. Economists use the term exchange rate pass-through (ERPT) to capture how exchange rate movements affect prices. Initially, changes in the exchange rate affect import prices (often called first-stage ERPT), which feed through into the overall price level and inflation (second-stage ERPT) (Graph 11). First-stage ERPT is believed to be quite large and to occur fairly fast relative to second-stage ERPT. Knowing the degree of ERPT is crucial for conducting appropriate monetary and exchange rate policy. For example, the lower the degree of ERPT, the smaller the interest rate adjustment required to maintain the inflation target; hence monetary policy becomes more effective. In contrast, if ERPT is high, the central bank may be tempted to intervene in the foreign exchange market to limit currency fluctuations. The fear of floating is partly linked to concern about high ERPT and its consequences for the trade balance (see eg Brun-Aguerre et al (2012)).

Many factors may influence ERPT, thus the empirical estimates of the magnitude have varied widely across countries and time periods. One important factor for overall pass-through rates are changes in the composition of industries in each country's import basket (see eg Campa and Goldberg (2005)). The degree of competition may affect the magnitude of ERPT; for example, in a competitive market, margins tend to be much tighter, so firms do not have the ability to absorb the effects of exchange rate movements and they may adjust prices more quickly. Over time, ERPT may also change due to macroeconomic conditions, such as inflation or the business cycle. Among others, Taylor (2000) puts forward the hypothesis that the responsiveness of prices to exchange rate dynamics depends positively on inflation. In a low and stable inflation environment, economic agents perceive shocks as temporary, which may happen when monetary credibility is established. The state of the economy may also affect ERPT; for example, when the economy is strong, economic agents – especially retailers in second-stage ERPT – tend to be more aggressive in passing on import cost increases, and vice versa (Chew et al (2011)).



Overall, in line with the trend of inflation and expectations, ERPT in Indonesia has been declining as well.⁶ However, as also commonly observed in other countries, the magnitude of ERPT is sensitive to model specifications. Based on various approaches, recent ERPT estimates for Indonesia are in the range of 0.07–0.13. One way to measure ERPT is to use input-output tables to arrive at a measure of the import content of households and combine this with the estimates of import pass-through (Gopinath (2015)). As can be seen in Graph 12, relative to other countries, Indonesia’s ERPT magnitude and import content are both moderate, around 0.13. Hence, a 1% depreciation of the rupiah will increase inflation by approximately 0.13%. Among others, Kurniati (2007) has found that post-Asian crisis ERPT is lower than in the pre-crisis period. Recent research by Bank Indonesia (2015) using sample period 2002–14 obtained similar results, showing that the second-half period ERPT is lower than the first-half period ERPT.

Over time, ERPT may change due to economic conditions, such as inflation or the business cycle. In particular, during the recent period of growth deceleration, there are indications that ERPT has been subdued (Graph 13). When demand is weak, firms are reluctant to pass the depreciation on to prices and risk a loss in market share, preferring instead to reduce their profit margin (Graph 14). Another factor that makes firms reluctant to pass on depreciation to prices is that they perceive depreciations as temporary fluctuations and thus do not change their inflation expectations. During the latest episode of significant depreciation (August 2015), inflation expectations were relatively stable (Graphs 9 and 10) and hence the ERPT was relatively muted.



⁶ Evidence of lower ERPT has also been observed in other countries; see Taylor (2000), Campa and Goldberg (2005), Mihaljek and Klau (2008) and Frankel et al (2012).

5. Implications for monetary policy

Despite several significant improvements since the adoption of an ITF in Indonesia in July 2005, inflation targeting still faces challenges, especially in the aftermath of GFC. A key challenge remains how to build and maintain credibility. Credibility and expectations are closely related. In the US case, Davis (2014a) argues that inflation expectations, particularly long-rung expectations in the post-Volcker era, can best be explained in a model where the Federal Reserve's monetary reaction function is unchanged but the central bank gradually regains credibility and with time is able to anchor inflation expectations by convincing the public of its commitment to a low and stable inflation rate.

In the case of Indonesia, building credibility is more challenging as inflation is strongly influenced by supply shocks such as volatile food and administered prices. Hitherto, inflation targets have been achieved only occasionally and never consecutively. The main priority for Bank Indonesia is to build credibility through the following actions (see eg Goeltom (2008)):

- i. Taking extensive steps to communicate the policy framework to the public through seminars and roundtable discussions with bankers, academics, government officials, Bank Indonesia regional office officials and the media.
- ii. Reinforcing communication with monthly and quarterly policy announcements in order to establish consistency, a key prerequisite in communicating inflation targeting policy. Success in building credibility will ensue only if the policy is clearly and consistently implemented in line with deviations of expected inflation from the target.
- iii. Strengthening decision-making process within Bank Indonesia as required by forward-looking strategy to determine monetary policy responses for achieving the inflation target. Overall macroeconomic conditions, the inflation forecast and monetary policy responses are assessed at each quarterly board meeting as the basis for deciding the BI Rate to attain the inflation target.
- iv. Publishing regular press releases and holding press conferences to announce the decisions of the board meeting. These are supplemented with a quarterly Monetary Policy Report (presenting an overall assessment of macroeconomic, inflation and monetary conditions), the inflation forecast and the monetary policy responses necessary to keep inflation on track with the target.
- v. Strengthening policy coordination with the fiscal authorities. The effect of increases in administered prices on inflation means that inflationary pressures can potentially be mitigated through regular consultation on proper timing for adjustments in administered prices.

In addition, the GFC provided clearer evidence that financial systems are affected by the economic conditions prevailing in advanced economies and that some external disturbances are beyond the control of the monetary authority and may cause inflation to deviate from its target, thus affecting the credibility of inflation targeting (see eg Agénor and da Silva (2013)). In the aftermath of the GFC, there has been an ongoing debate on whether monetary policy (including inflation targeting) should incorporate financial stability. A consensus has been emerging that achieving price stability is insufficient to guarantee macroeconomic stability overall because

macroeconomic instability frequently stems from instability in the financial sector, even when inflation is maintained at a low level (Bean et al (2010)).

In line with this consensus, the post-GFC monetary policy framework in Indonesia is characterised by the Flexible ITF. Inflation targeting is implemented in a more flexible manner, in the sense that Bank Indonesia must not only look at the inflation target merely in terms of policy formulation but also consider a number of other factors, including financial sector stability as well as the dynamics of capital flows and the exchange rate. Given the dynamics and complexity of the challenges faced, there are five principles for enhancing Flexible ITF (Juhro and Goeltom (2015)):

- i. Continuing the adherence of policy framework to an inflation target as the overriding objective of monetary policy. The main characteristics of ITF will remain (ie pre-emptive, independent, transparent and accountable policy implementation).
- ii. Integrating monetary and macroprudential policy. Appropriate monetary and macroprudential policy integration is required in order to buttress monetary and financial system stability.
- iii. Managing the dynamics of capital flows and exchange rates. In supporting macroeconomic stability, coordinated implementation of a policy instrument mix must ultimately be part of an important strategy for optimally managing the monetary policy trilemma.
- iv. Strengthening policy communication strategy as part of the tool chest of policy instruments. Policy communication is no longer practiced purely for the sake of transparency and accountability; it is now regarded as a valuable monetary policy instrument.
- v. Strengthening Bank Indonesia and government policy coordination. Policy coordination is crucial, given that inflation stemming from the supply side creates most inflation volatility.

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