

# Indonesia: stabilizing the exchange rate along its fundamental

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## Abstract

For a small open economy like Indonesia, exchange rate movement does not always reflect fundamental value. Increasing exchange rate volatility often occurs as a result of volatile capital flows, irrational behaviour of market players, the microstructure conditions of the market, and offshore market influence. In this case, relying solely on interest rate policy to achieve the inflation target and maintain stability is not always sufficient. Our strategy is to include exchange rate policy in the monetary and macroprudential policy mix consisting of five policy instruments, i.e. interest rate policy, exchange rate policy, management of capital flows, macroprudential policy, and monetary policy communication. Under this framework, foreign exchange intervention is implemented with the primary motivation of stabilizing the exchange rate along its fundamental path and maintaining financial system stability. In the case of Indonesia, the intervention has been able to reduce the inflation pass-through effects of rupiah depreciation due to a recent period of capital outflows and current account deficit. The central bank also performed dual interventions in both the foreign exchange and bond markets to support financial system stability.

Keywords: exchange rate, monetary policy, central banking, open economy macroeconomics

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## A. Exchange rate policy under inflation targeting

Under the standard inflation targeting framework, interest rate response is the main instrument to achieve the inflation target. A fully flexible exchange rate is usually adopted as a shock absorber for external shocks to the domestic economy. The monetary response to the pass-through effects of the exchange rate on the domestic economy, including achievement of the inflation target, is based primarily on interest rate policy.

For a small open economy like Indonesia, however, exchange rate movement does not always reflect fundamental value. This is particularly so since the onset of global crisis in 2008. Volatile capital flows, increasing risk appetite among global investors, and news on the progress of crisis resolution in the advanced countries may give rise to increasing exchange rate volatility beyond the fundamental. Exchange rate overshooting is often amplified by a relatively shallow and inefficient domestic foreign exchange market. Excessive exchange rate movement has detrimental impact on the domestic economy as well as on monetary and financial stability, and thus, managing the exchange rate cannot be based solely on manipulating interest rates.

Under these circumstances, Indonesia regards exchange rate policy as an integral part of an overall monetary and macroprudential policy mix designed to achieve price stability while paying due attention to economic growth as well as monetary and financial system stability. The general thrust of the policy is to stabilize the exchange rate along its fundamental. Operationally, this involves a number of steps. First, a methodology is developed to assess a number of options for determining a fundamental level of the exchange rate that is consistent with the objective of managing the external and internal balances.<sup>2</sup> Second, a simulation is conducted to assess how consistent the path of the exchange rate's fundamental is with the inflation and macroeconomic forecast, as part of the inflation targeting exercise. Finally, decisions are made with regard to the interest rate response and corresponding exchange rate path that are consistent with the objective of achieving the inflation target.

Thus, under the framework, the monetary and macroprudential policy mix consists of the following five policy instruments. First, the **interest rate policy** is the main instrument to achieve the inflation target in the context of the forecasting and policy analysis described above. The decision on the policy rate, i.e. the BI rate, is made so as to ensure that the inflation forecast over the policy horizon (two years ahead) will fall within the inflation target range (4.5%±1% for 2013 and 2014). Second, the **exchange rate policy** is geared toward maintaining the stability of exchange rate along the chosen fundamental path that is consistent with the inflation and macroeconomic forecast over the policy horizon. The volatility of day-to-day exchange rate movements along the chosen fundamental path is smoothed out by symmetric foreign exchange intervention.

<sup>2</sup> A number of methods are available to assess the fundamental level of the exchange rate, including those developed by the IMF (the CGER and Macroeconomic Balance). Nonetheless, due to the uncertainties involving these fundamental exchange rate levels, judgment is needed to decide which exchange rate path is consistent with the objective of price stability, given the macroeconomic forecast over the policy horizon.

Third, **management of capital flows**, especially short-term and volatile flows, is conducted to help stabilize the exchange rate as well as mitigate the risks of capital reversal and financial system instability. This has involved a number of macroprudential measures consistent with the principles of a free foreign exchange system, e.g. applying a six-month holding period for BI's certificates, limits on short-term bank offshore borrowing, and foreign exchange reserve requirements.

Fourth, **macroprudential policy** is formulated to ensure financial system stability and support the management of domestic demand in line with the overall inflation and macroeconomic forecast. The objective here is to strengthen the resilience of the financial system, including its ability to withstand exchange rate risk, to mitigate the pro-cyclicality of the intermediation function, and to enhance the efficiency of the financial system. A number of macroprudential measures have been used in this context, including the application of a loan-to-value ratio to contain excessive lending in the real estate and automotive sectors.

Finally, **monetary policy communication** is continuously conducted to manage expectations so that they are in line with the inflation and macroeconomic forecast. This is important not only for transparency, but even more importantly to foster more forward-looking expectations and thus strengthen monetary policy responses.

## B. Foreign exchange intervention: motivation and tactics

As an element of the implementation of overall monetary and macroprudential policy, the primary motivation of foreign exchange intervention is to stabilize the exchange rate along its fundamental path. The emphasis is more on supporting price stability and financial system stability than on maintaining external competitiveness. Thus, with current account surpluses and sizable capital inflows during the period from the onset of the global crisis up to August 2011, the rupiah appreciated by as much as 14.9% in 2009, then by 4.6% in 2010 and 5.4% up to August 2011 – an appreciation helpful in mitigating imported inflation due to high global commodity prices during the period.

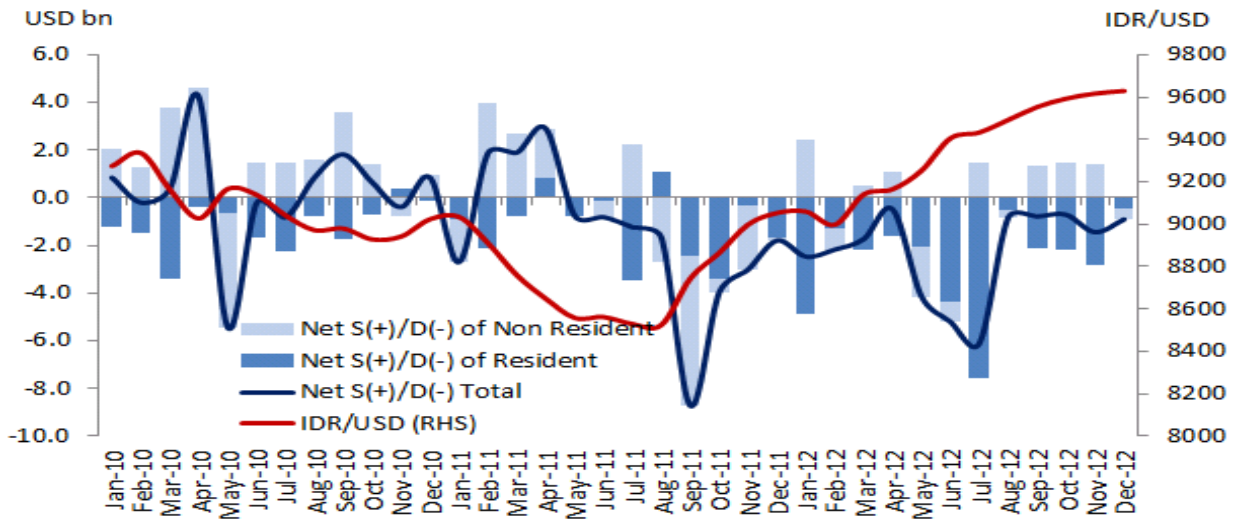
The situation was reversed as the global crisis worsened in September 2011 with the downgrading of the US ratings and the aggravation of the Greek crisis. The immediate impacts took the form of huge capital outflows from Indonesia. Heavy pressures led to exchange rate overshooting, threatening overall macroeconomic and financial system stability as well as the momentum of economic growth. Even though capital inflows resumed in 2012 as the global financial market improved, pressures on the exchange rate continued as the current account went into deficit territory with declining global commodity prices. Overall, the rupiah depreciated 6.9% from August to December 2011, and 6.6% in 2012. Graph 1 depicts the supply-demand situation in the foreign exchange market, while Graph 2 shows the corresponding path and volatility of the rupiah exchange rate.

Experience in Indonesia shows that understanding the behaviour of international investors is important for the conduct of foreign exchange intervention, given the effect of that behaviour on the nature and size of capital flows as well as exchange rate movements. Two aspects need to be considered. First, types of international investors, i.e. whether they are hedge fund or long-term investors. Hedge fund investors are typically short-term operators looking for

currency gain (carry trade), and thus often provoke volatility in the capital flows and exchange rate. Long-term investors seek higher yield (interest and capital gains) based on economic fundamentals, and thus they are more stable in their behaviour as regards capital flows and exchange rates.

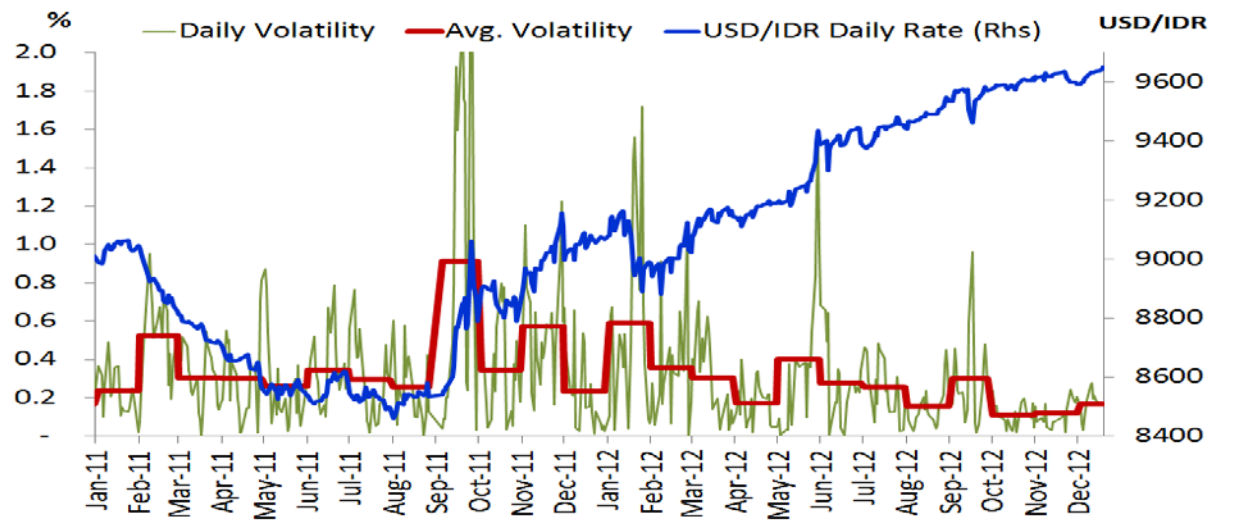
FX market supply-demand

Graph 1



Rupiah exchange rate

Graph 2



Second, the nature of factors that affect changes in the behaviour of international investors, i.e. whether they are of global or domestic origin, also matters. The origin of the factors does not matter to hedge funds, and any news affecting currency gain may influence their portfolio decisions. On the other hand, the portfolio decisions of long-term investors, as long as they have confidence in the country's economic fundamentals, are not easily affected by any short-term or technical news that influences exchange rate movements.

We are able to study these international investors' behaviour closely, since the central bank functions include custody, settlement and sub-registry of government

bond transactions in the secondary market. The focus is to provide a climate that is attractive to long-term investors. The policy objective of stabilizing the exchange rate along its fundamental serves this type of international investor well. We complement the conduct of foreign exchange intervention with active communication to international investors through our Investor Relation Unit (IRU), e.g. by teleconferencing, meetings, seminars, and our website's continuous updates on recent economic developments and other information.

Tactically, foreign exchange intervention is conducted through agent banks to buy and sell foreign currency (mostly US dollars) depending on excess supply or demand conditions in the market. The aim is to smooth out the volatility of exchange rate movements along the chosen fundamental path. Most transactions are spot, but the central bank is also conducting swap and forward transactions as the bank's needs and foreign exchange liquidity conditions dictate. Since mid-2012, the central bank is also offering foreign exchange term deposits (through weekly auctions) to those banks that are experiencing a temporary excess of foreign exchange liquidity.

The conduct of foreign exchange intervention is integrated with domestic-currency monetary operations to ensure that any impact on domestic liquidity is managed and is consistent with supporting the interest rate policy (sterilized intervention). During periods of heavy appreciatory pressure on the rupiah, the expansion of domestic liquidity from the purchase of foreign exchange to stabilize the exchange rate is absorbed through domestic monetary operations providing more domestic currency term deposits, reverse repo operations using government bonds, and the deposit facility. And the opposite is true when the rupiah faces downward pressures. This sterilized intervention is designed to ensure that the objectives of maintaining price stability, exchange rate stability and financial system stability can be attained.

Since September 2011, particularly during heavy capital outflows, the central bank's foreign exchange intervention has been strengthened by the purchase of government bonds in the secondary market. During these periods, in addition to stabilizing the exchange rate along the fundamental, more intervention by the central bank to supply foreign exchange was needed to provide for the increasing demand from foreign investors who wanted to reverse their Indonesian portfolio investments (mostly in the form of their holdings of government bonds). Central bank purchases of government bonds in the secondary market actually serve a number of purposes. First, such purchasing supports the foreign exchange intervention to stabilize the exchange rate, since it directly addresses the root cause of depreciation pressure, namely, reversals of foreign portfolio investments in government bonds. Second, the purchase of government bonds acts to recycle back into the financial system the domestic currency liquidity that was absorbed by foreign exchange intervention, so that it is consistent with the overall objective of the domestic monetary operations. Third, the operation is also consistent with the central bank's goal of employing government bonds, in preference to its own bills, as monetary instruments. And finally, the dual intervention in both foreign exchange and bond markets helps strengthen overall financial system stability by keeping two of the three financial markets stable.

## C. Effectiveness of foreign exchange intervention

To assess the effectiveness of foreign exchange intervention, one could examine a number of aspects that are in line with the central bank's overall objective of maintaining price stability as well as monetary and financial system stability. First, there is the question of what the objective of the exchange rate policy is – merely smoothing volatility, or also managing the path of exchange rate movement, gaining the ability to influence exchange rate expectations, and other things. Second, there is the matter of the depth and behaviour of the microstructure of the foreign exchange market, e.g. the number of players, volume of transactions, availability and variety of financial instruments, liquidity conditions and distribution across players, counter-party risks, and the infrastructure needed for efficient market functioning. The other aspect that is often important for the effectiveness of foreign exchange intervention is the adequacy of international reserves relative to the depth of the markets and the country's external vulnerability. In general, the more reserves there are, the more effective foreign exchange intervention will be.

In Indonesia's case, we view exchange rate movement as not always reflecting the economic fundamentals, let alone being consistent with the overall objective of achieving price stability and supporting financial system stability. Exchange rate overshooting occurs because of a number of factors, e.g. volatile capital flows, irrational behaviour of market players, and the microstructure conditions of the market, as well as influence from offshore markets. Thus, as stated above, the objective of foreign exchange intervention is to stabilize the exchange rate along its fundamental path. And judging from the perspective of this objective, the intervention conducted has proven able to manage the exchange rate volatility and ensure a path that is consistent with achieving the inflation target and supporting financial stability. Over the more medium term, the rupiah gradually appreciated during the period up to August 2011 and has been gradually depreciating since, reflecting overall macroeconomic developments during these two episodes in the Indonesian economy.

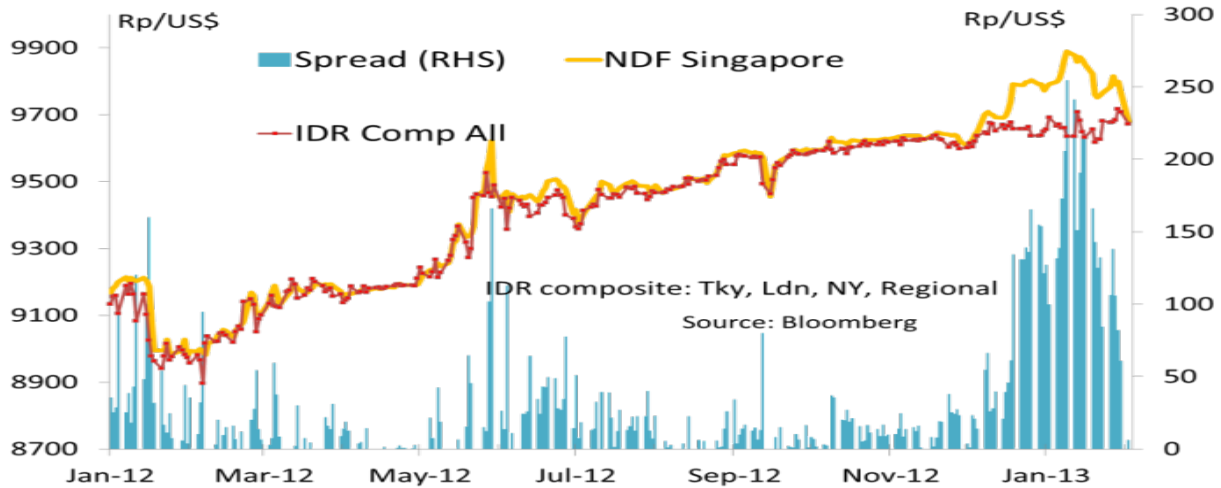
From the short-term perspective, the effectiveness of intervention in influencing exchange rate expectations is more difficult to assess, since the exchange rate is more susceptible to news developments and market reactions to them. In general, when market reactions are not excessive, supply and demand in the market in most cases can balance each other, and intervention may be more effective in influencing both the spot and forward exchange markets if it is used to deal with any remaining excess demand or supply in the market. Information on the distribution of spot quotations and forward forecasts among market players could be used as input when conducting intervention.

However, when news and market reactions are erratic, these two distributions tend to widen, and even their central tendencies tend to diverge from the central bank's view on where the fundamental exchange rate path should be. The spread between offshore and onshore exchange rates also tends to widen. An example is what happened to the rupiah early this year, when the news included a number of negative items, including widening current account deficits, the issue of increasing fuel subsidy burdens and fiscal sustainability, and worries about foreign exchange liquidity in the domestic market. The spread between offshore and onshore forward rates widened to as much as RP 275 or about 2.8 percent of the RP 9650 per US dollar exchange rate at that time (Graph 3). The spread is closing at present, as the

central bank intensifies its efforts to supply foreign exchange to the market and its communications on the balance of payments situation.

Exchange rate: onshore vs. NDF

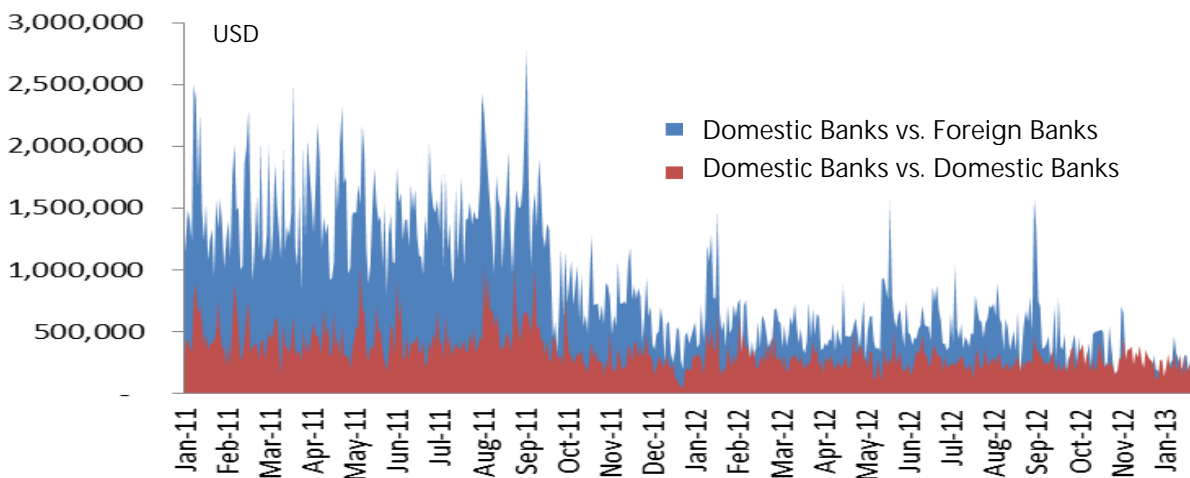
Graph 3



The microstructure of the domestic foreign exchange market also influences the effectiveness of intervention. Even though there are 72 foreign exchange banks in Indonesia, only about 22 to 38 banks actively trade in the foreign exchange market. Domestic state-owned banks constantly supply foreign exchange, while foreign banks' supply or demand depends on capital inflow/outflow. The volume of transactions is relatively small, and it tends to be larger during periods of heavy portfolio inflows (up to August 2011) but lower afterwards (Graph 4). Most transactions are spot, although forward transactions are developing. There are counter-party transaction limits, especially for smaller banks. Foreign exchange transactions must have underlyings and are limited to domestic players only.

Volume of FX transactions

Graph 4



Under these conditions, rupiah exchange rate movements are prone to changes in perceptions and market conditions, both domestically and offshore. On one hand, the thinness of the market makes the banks heavily dependent on the central bank to absorb any excess supply in the market (during current account surplus and/or large capital inflow periods) and to supply any excess demand in the market (during current account deficit and/or capital outflow periods). Thus, the adequacy of foreign exchange reserves will increase the effectiveness of intervention, and for that reason it needs to be continuously assessed in relation to current balance of payments dynamics. On the other hand, the effectiveness of intervention will also depend on the central bank's ability to influence market expectations, since short-term exchange rate movements are susceptible to any change in perceptions under these microstructure conditions.

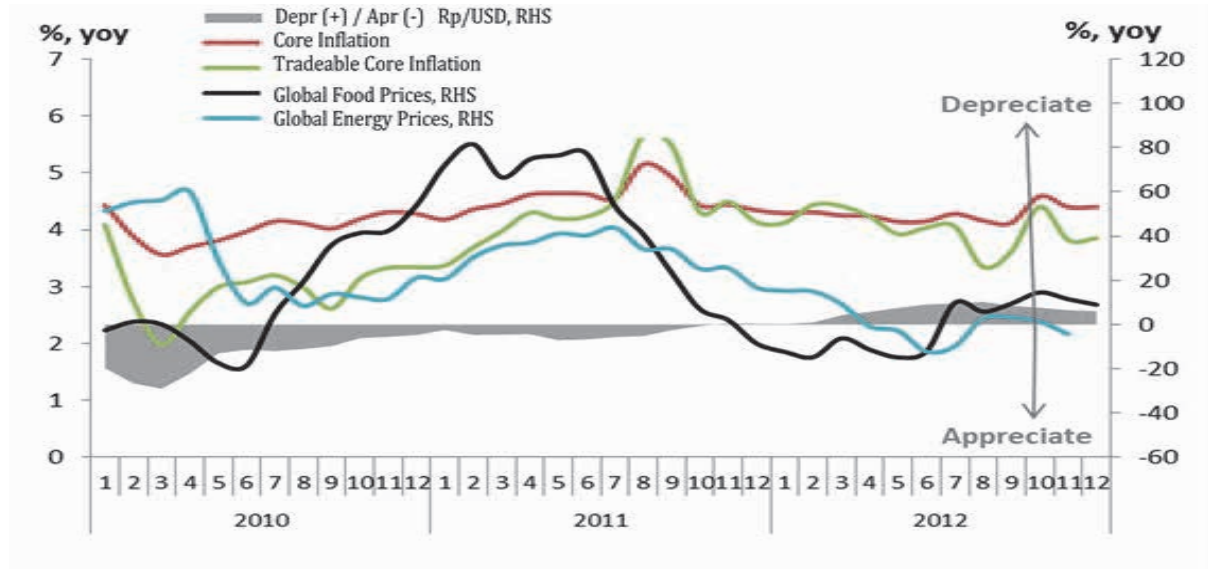
The foregoing discussion points to the need for complementing foreign exchange intervention with other policies that are designed to manage the volatility of capital flows and deepen the domestic market. For that reason, as discussed earlier, a number of policies have been put in place in Indonesia to manage short-term and volatile capital flows, e.g. a holding period for investment in the central bank bills, limits on short-term offshore borrowing, etc. Capital flow management is guided by the following three principles. First, it must be consistent with principles regarding the foreign exchange system. The prudential measures for managing capital flows apply to both residents and non-residents, and thus they are not regarded as capital controls. Second, we welcome long-term capital flows that benefit the economy, and thus our measures target short-term and speculative capital flows. Third, the measures are designed so that they can be monitored and implemented effectively.

To increase the supply of foreign exchange in the market, a regulation has been issued requiring that foreign exchange receipts from exports and offshore borrowing be repatriated to domestic banks. Continuous efforts have also been directed toward deepening the domestic foreign exchange market to include offering foreign exchange term deposits, and toward relaxing forward transactions. The most recent measure in this area is the establishment of a market reference rate for onshore foreign exchange transactions, including forward transactions, thus limiting the impact of the offshore NDF rate on the domestic market.

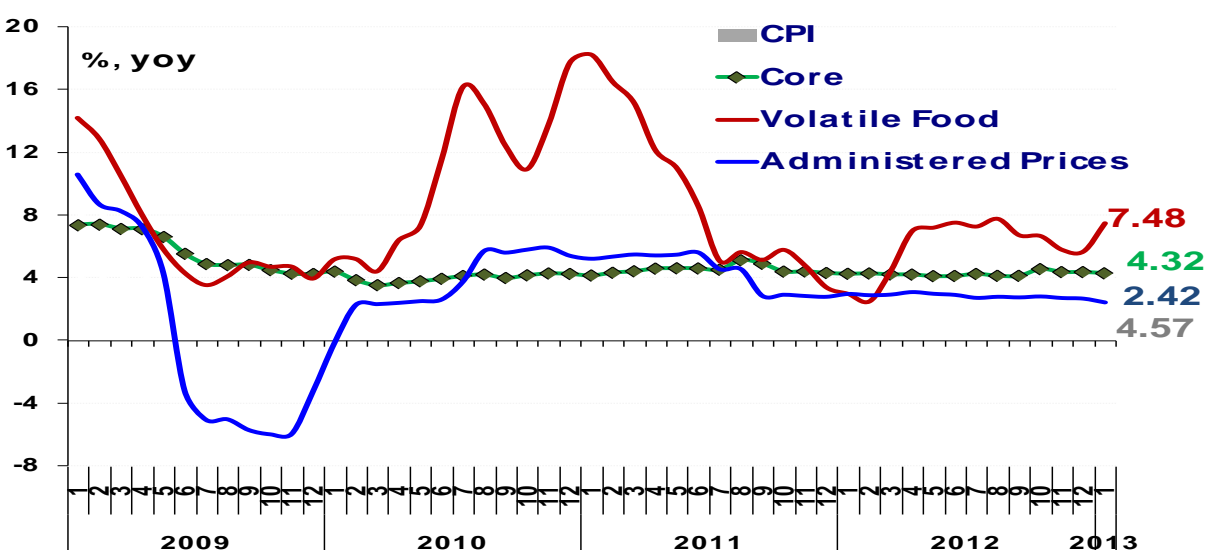
## D. Impacts on price stability and financial system stability

As explained in the first part of this paper, the success of foreign exchange intervention in Indonesia will be judged on its contribution to achieving the inflation target and supporting financial system stability. As to the former goal, exchange rate policy should be able to reduce inflation pressures stemming from foreign commodity prices (imported inflation). Thus, rupiah exchange appreciation in 2009, 2010, and 2011 (up to August) helped to reduce imported inflation during these periods of high commodity prices. This was made possible by a sizable balance of payments surplus due to both the current account surplus and huge capital inflows during the period. Subsequently, the policy has been able to reduce the inflation pass-through effects of rupiah depreciation due to capital outflows and a current account deficit. The decline in global commodity prices since 2012 was helpful to the policy. In 2012, for example, the rupiah depreciation of about 6.6% in nominal terms was less than the decline of Indonesian external commodity prices, which was roughly 14.7%.





Graph 5 depicts developments in the exchange rate, global commodity prices, and core inflation, while Graph 6 breaks CPI inflation down into core inflation, volatile food prices, and administered prices. During the first episode, nominal rupiah appreciation was able to mitigate the impact of high global commodity prices on tradeable core inflation. Subsequently, depreciation of the rupiah has not had significant pass-through effects on tradeable core inflation, as it coincided with the decline in global commodity prices. In most cases, core inflation can be maintained below 4.50% and plays a significant role in the efforts of the central bank to achieve the inflation target. CPI inflation declined from 6.96% in 2010 to 3.79% in 2011 (inflation target  $5\% \pm 1\%$ ) and to 4.32% in 2012 (inflation target  $4.5\% \pm 1\%$ ).

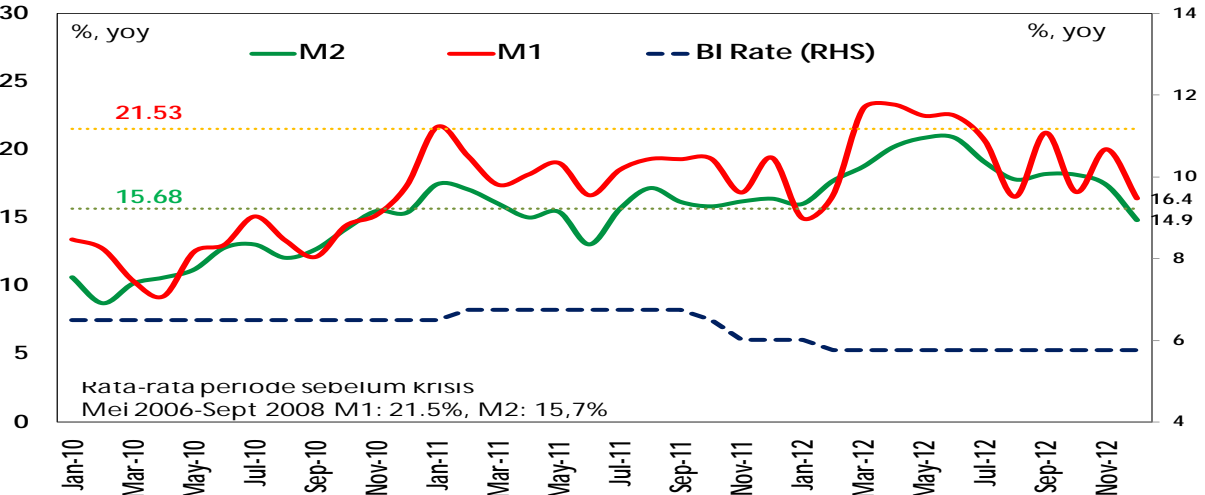


As to supporting financial system stability, this has been managed through dual interventions of the central bank in both the foreign exchange and bond markets. Not only can exchange rate stability thus be maintained, but also the dual intervention has been able to ensure that domestic liquidity is sufficient and consistent with managing monetary and financial system stability. This is in contrast to what happened in 2008, when heavy foreign exchange intervention to defend the rupiah from the impacts of the global crisis caused a shortage of domestic liquidity and put pressures on conditions for banks, especially smaller banks. Furthermore, as discussed above, central bank purchases of government bonds in the secondary market have been able to address the root cause of exchange rate pressures and helped to stabilize the financial markets.

Graph 7 shows the evolution of the monetary policy rate (BI rate) and monetary aggregates. With the help of exchange rate policy geared toward stabilizing the rupiah along its fundamental path and managing imported inflation, the BI rate can be consistently designed to control inflation so that it falls within the target. Monetary operations are conducted to manage domestic liquidity consistent with the interest rate policy, as shown in the evolution of monetary aggregates, which reflect the economy's liquidity conditions. Graph 8 depicts the downward shift in the yield structure of government bonds, in line with inflation that was under control, and the decline in the policy rate. Foreign ownership of government bonds is also stable at about 30% of the outstanding amount, and there has been a shift toward longer-term maturity.

Interest policy rate and monetary aggregates

Graph 7



In summary, exchange rate policy in Indonesia is geared toward price stability and financial system stability. The main motivation of foreign exchange intervention is to stabilize the exchange rate along its fundamental, consistent with these objectives. Tactically, this has been done through dual intervention: in the foreign exchange market in addition to the central bank's operations in the secondary government bond market. The policy has been strengthened with other measures

to manage short-term and volatile capital flows, with macroprudential policies, and with on-going efforts to deepen domestic financial markets.

Term structure of government bond yield

Graph 8

