An exchange-rate-centred monetary policy system: Singapore's experience

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Abstract

Unlike most other countries, Singapore has adopted the use of the exchange rate rather than the interest rate as the instrument of monetary policy. The choice of the exchange rate is predicated on the Singapore economy's small size and its high degree of openness to trade and capital flows. The basket, band and crawl features of the exchange rate system have served as an effective anchor of price stability, keeping inflation low and stable over the past 30 years. In addition, Singapore has complemented monetary policy with micro- and macroprudential measures to ensure overall price and financial stability in the economy.

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1. Introduction

The issue of foreign exchange intervention is directly pertinent in the context of the conduct of monetary policy by the Monetary Authority of Singapore (MAS). Since 1981, monetary policy in Singapore has centred on the management of the exchange rate.

This paper first describes the mechanics of our operations, and then focuses on the broader challenges associated with managing the exchange rate since the onset of the crisis in 2008. The outline of the paper is as follows. Section 2 briefly explains the rationale for the choice of the exchange rate as a key macroeconomic lever, and sets out the framework of the exchange rate policy. Section 3 delves into the details of the implementation of monetary policy, including the tools used to sterilise the liquidity impact of our interventions. Section 4 follows with a review of Singapore's monetary responses since 2008. The challenges of an exchange-rate-centred monetary policy framework and MAS's assessment are then discussed in Section 5. Section 6 is the conclusion.

2. The exchange rate as the instrument of monetary policy

The exchange rate represents an ideal intermediate target of monetary policy for several reasons.

- First, it makes sense in the context of the small and open Singapore economy. Singapore has no natural resources, and is almost completely dependent on imports for necessities such as food and energy. The import content of domestic consumption is correspondingly high, with nearly 40 cents out of every $1 spent going to imports. Singapore has to export to pay for these imports. The economy is thus extremely open to trade, which totalled more than 300% of GDP in 2011.
- Second, the economy's openness means that the exchange rate bears a stable and predictable relationship to price stability as the final target of policy over the medium-term.
- Third, the exchange rate is relatively controllable through direct intervention in the foreign exchange markets. An exchange-rate-based monetary policy thus allows the government to retain greater control over macroeconomic outcomes such as GDP and CPI inflation, and thus over the ultimate target of price stability.

Conversely, the structure of the Singapore economy reduces the scope for using interest rates as a monetary policy tool. First, the corporate sector is dominated by multinational corporations (MNCs), which rely on funding from their head offices (typically in developed economies) rather than on local banking systems or debt markets. Second, Singapore's role as an international financial centre has led to a large offshore banking centre that deals primarily in the G3 currencies, and it is one where assets denominated in those currencies far exceed those of the domestic banking system. As there is no control on capital flows between the offshore (foreign currency) and domestic (Singapore dollars) banking system, small changes in interest rate differentials can lead to large and rapid movements of capital. As a result, it is difficult to target interest rates in Singapore, as any attempt by MAS to raise or lower domestic interest rates would be foiled by a shift of funds into or out of the domestic financial system.

Changes in the exchange rate are transmitted to the economy in the following ways.

- First, the exchange rate acts *directly* to dampen imported inflationary pressures. Given that Singapore imports most of what it consumes, domestic prices are very sensitive to world prices. The exchange rate thus provides an important buffer against external price pressures at the borders, especially in periods of escalating global commodity prices, thereby contributing significantly to the objective of medium-term price stability.
- Second, the exchange rate acts *indirectly* to tackle domestic sources of inflation. A stronger currency moderates the external demand for our goods and services, and as the demand for domestic factor inputs eases, factor incomes rise more modestly. This in turn reduces the domestic demand for non-tradable goods and services, and puts downward pressure on prices.

Features of the basket, band and crawl system

There are three main features of the exchange rate system in Singapore, which can be summarised as the basket, band and crawl (BBC) system.

- First, the Singapore dollar is managed against a <u>basket</u> of currencies of our major trading partners (also known as the Singapore dollar nominal effective exchange rate or S$NEER). Hence, its movements are less volatile than if it were pegged to an individual currency. This feature also reflects Singapore's diverse trading pattern, with both the G3 and regional markets representing important partners in our merchandise and services trade.
- Second, MAS operates a *managed float regime* for the Singapore dollar. The trade-weighted exchange rate is allowed to fluctuate within a policy <u>band</u>, which provides a mechanism to accommodate short-term fluctuations in the foreign exchange markets and permits flexibility in managing the exchange rate. From an operational perspective, the band also minimises the need for constant foreign exchange interventions, in contrast to a system based on a hard currency peg.
- Third, the slope of the exchange rate policy band is reviewed regularly to ensure that it remains consistent with the economy's underlying fundamentals. This is the <u>crawl</u> feature which is incorporated in the band. It allows the exchange rate to adjust and avoid misalignment. The slope of the policy band, as well as the level at which it is centred, is not disclosed.

Together, these features have provided an anchor of stability for Singapore's highly open economy, and the effectiveness of the framework has underpinned confidence in the Singapore dollar.

The choice of the exchange rate as the main instrument of monetary policy necessarily implies that MAS cedes control over domestic interest rates and money supply. MAS does not attempt to control the level of domestic interest rates, limiting itself to dampening excessive interest rate volatility. Singapore dollar interest rates are therefore largely determined by foreign interest rates and investor expectations of the future movement of the Singapore dollar. MAS monitors interest rates and the money supply closely for economic surveillance, as well as to ensure sufficient liquidity in the system for regulatory and settlement purposes, rather than for use as a monetary policy tool.

3. Implementation of monetary policy

The implementation of monetary policy is kept separate from the formulation of monetary policy, so as to keep monetary policy decisions unencumbered by short-term implementation considerations. Throughout the day, MAS monitors movements in the S$NEER closely to ensure that it moves in an orderly fashion broadly within the policy band. When the S$NEER reaches the edge of the policy band on either side, or when there is undue volatility or speculation in the Singapore dollar, MAS will intervene in the foreign exchange market using spot or forward transactions through our primary dealers (PDs). It may also intervene before the band is reached, or allow the S$NEER to breach the band before intervening. Insofar as possible, it refrains from intervening and allows market forces to determine the level of the Singapore dollar exchange rate within the policy band.

The timing, magnitude and frequency of its intervention operations are not disclosed to the market. Together with the non-disclosure of the policy parameters, the practice of not commenting on MAS operations allows some constructive ambiguity in the management of the exchange rate. In the rare event where MAS's explicit presence is required to calm the market, or to deter excessive speculation, MAS may reveal its operations. For accountability, the details of foreign exchange intervention operations are reported fortnightly to the Monetary and Investment Policy Meeting, the equivalent of other central banks' Monetary Policy Committees.

Nevertheless, the market participants have a fairly good grasp of MAS's monetary policy, given the institution's continued efforts to increase the transparency of the framework. Since July 2001, the movement of the S$NEER has been included in the semi-annual Monetary Policy Statement (MPS). Historical S$NEER data has been published on a six-month lag since April 2006. In October 2012, MAS reduced the time lag and began releasing weekly average S$NEER data on the first Monday of each month, giving market participants more frequent reference points to calibrate their S$NEER models. In conjunction with the release of the MPS, MAS publishes the Macroeconomic Review (MR), which documents the analysis and assessment of macroeconomic developments in the Singapore economy, and shares with market participants, analysts and the wider public the basis for the policy decisions conveyed in the MPS.

These initiatives have enabled bank analysts to arrive at relatively similar estimates of the S$NEER. They can also infer MAS's presence from the price action when their S$NEER models detect that the exchange rate is close to the estimated bounds of the band. The credibility of MAS in (i) maintaining the integrity of policy band and (ii) ensuring that the policy settings are appropriate for the fundamentals of the economy also helps to increase the effectiveness of our intervention.

Sterilisation of intervention operations

MAS's foreign exchange interventions have an impact on liquidity conditions in the banking system. Taking account of the other market factors as well,[2] MAS decides on the level of Singapore dollar liquidity that is sufficient to meet the banks' demand for reserve and settlement balances.

The instruments for the money market operations are:

- direct borrowing;
- foreign exchange swaps;
- repurchase agreements (repos) of Singapore Government Securities (SGS); and
- MAS Bills.

The MAS Bills are the latest instrument, introduced in 2011. They provide the growing banking system with an additional source of liquid regulatory assets, allowing commercial banks to practise better liquidity management. The greater utility and negotiability of the MAS Bills also lower the costs of MAS's sterilisation operations, as compared to clean borrowings from the banks. In the current environment of exceptionally low interest rates in advanced economies, domestic interest rates have followed suit, also easing significantly. Accordingly, the cut-off yield of the 12-week MAS Bill, as a proxy of sterilisation cost, is currently below 0.30%.

4. Effectiveness of monetary policy

The effectiveness of the exchange-rate-centred monetary policy as an anti-inflation tool for the Singapore economy is shown by the fact that domestic inflation has been relatively low for the last 30 years, averaging 2.1% per annum from 1981 to 2012. Expectations of price stability have also become more entrenched as a result of the long record of low inflation. More recently, headline inflation has remained elevated, reflecting transitional cost adjustments associated with supply-side constraints in land and labour, as well as the economy's broader restructuring to productivity-driven growth. Core inflation, however, has remained stable, typically in the range of 2.0–3.5% in each month since January 2009.

Recent historical experience: global financial crisis

In the most recent financial crisis, MAS adopted a gradualist approach in its monetary policy decisions, taking into account the nature of the external shock and the crucial role that the exchange rate plays as an anchor of stability, especially in times of uncertainty (Figure 1). In October 2008, MAS eased its policy, adopting a zero per cent appreciation of S$NEER policy band, amidst expectations of moderating inflationary pressures and the risk of further deterioration in the external environment. The policy band was subsequently re-centred downwards in

[2] These other market factors include currency issuance, fund flows from the Central Provident Fund, and government fund transfers.

April 2009, in line with the lower level of economic activity that would prevail over the crisis horizon.

Budgetary measures played a relatively larger role in countercyclical stabilisation in 2009. A $20.5b (8.2% of GDP) Resilience Package was announced, targeting specific segments of society where quick support was most warranted. The key features of the package included the Jobs Credit Scheme, which incentivised employers to retain their existing workers, the Special Risk-Sharing Initiative to stimulate bank lending, and a corporate income tax cut. The Singapore economy recovered swiftly towards late 2009 and early 2010, expanding 5.3% y-o-y in Q4 2009, 16.5% y-o-y in Q1 2010 and 19.8% y-o-y in Q2 2010.

As a broad-based recovery appeared to take root in the economy, MAS pre-emptively tightened monetary policy in April 2010 by re-centring the S$NEER policy band upwards and restoring its modest and gradual appreciation path. This marked the end of the accommodative monetary policy stance. Fiscal policy shifted away from the recession relief measures to more medium-term-oriented and productivity-enhancing initiatives. The band was subsequently widened to accommodate volatility in the international financial markets.

5. Post-Crisis: intervention, financial markets and monetary policy

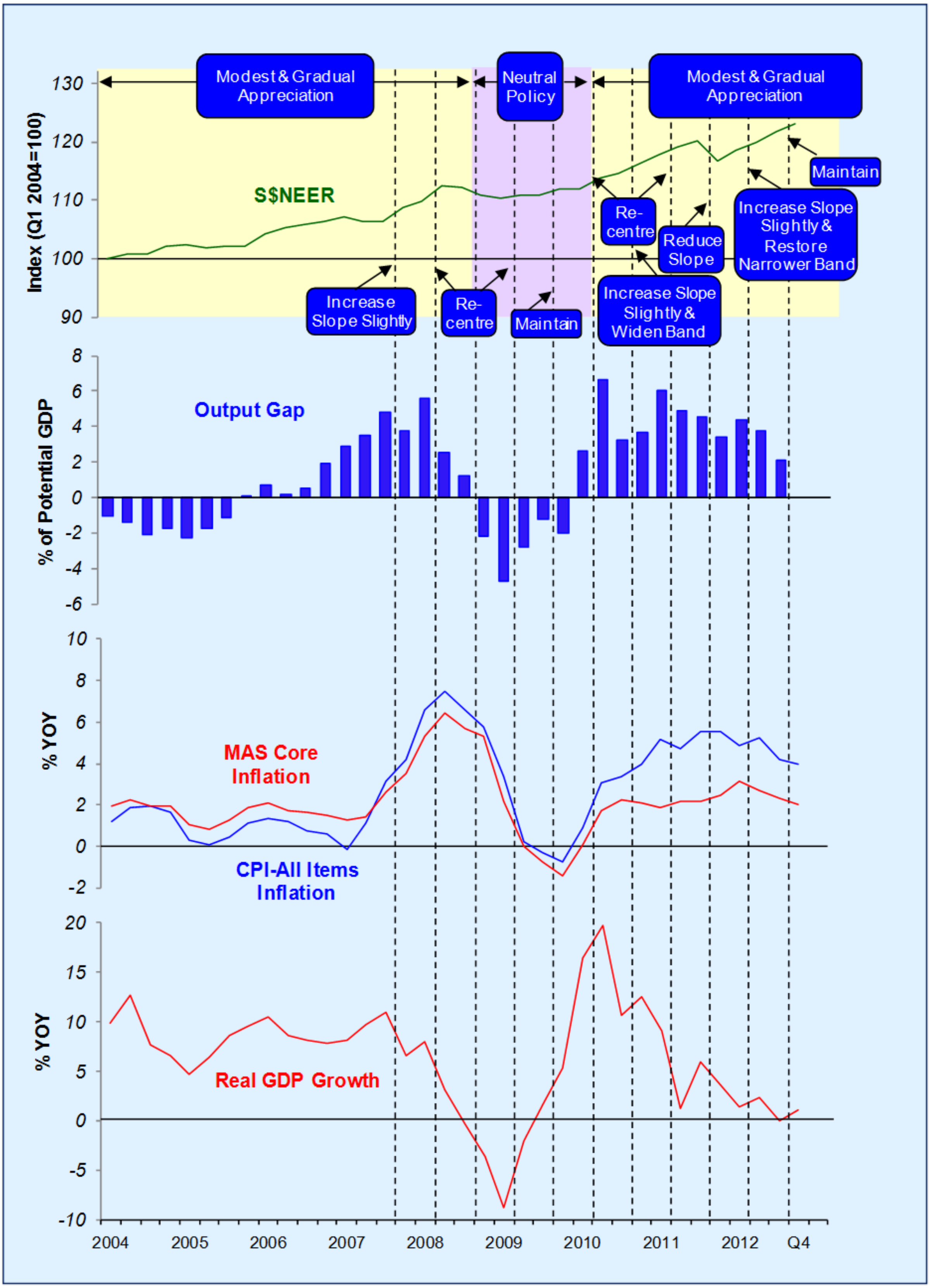
Singapore, like other emerging Asian economies, has to tackle the consequences of sustained capital inflows following the adoption of unusual monetary policies in developed economies. Since 2010 (according to balance of payments data) Singapore has seen strong capital inflows accompanying the broad-based weakness of the US dollar and relatively positive outlook of the Asian economies, including Singapore. Gross capital inflows turned positive, rising from an average of –9.2% of GDP in the Q1 2008 to Q4 2009 period to reach 55% of GDP in each quarter between Q1 2010 and Q3 2011. These inflows peaked in Q3 2011 at 131% of GDP.

Despite the “monetary tsunami”, MAS has not had to undertake any capital flow management measures in its conduct of monetary policy. The implementation of exchange rate policy continues to be directed at keeping the exchange rate on a path congruent with medium-term price stability. From an operational perspective, MAS has always had to face large and volatile capital inflows, given our small and open economy and the choice of the exchange rate as the intermediate target of monetary policy. Our deep and liquid financial markets, coupled with the efficient banking system, have helped to intermediate the capital flows effectively. In the event of sustained large capital inflows, the impact on the MAS balance sheet is also mitigated by relatively low sterilisation costs, as the interest rates are determined by external liquidity conditions. MAS also expanded our sterilisation capacity by issuing MAS Bills in 2011.

To be sure, capital flows could generate asset bubbles and threaten financial and macroeconomic stability. However, monetary policy is an extremely blunt instrument for addressing capital flows and asset price inflation. While a tighter monetary policy could dampen asset prices, it would come at the expense of significantly lower GDP growth, as the monetary policy action would have to be sufficiently aggressive to have a discernible impact on specific asset markets. This would also inject unwarranted volatility into the exchange rate, and jeopardise its role as an anchor of stability.

Key macroeconomic variables, and changes in the monetary policy stance

Figure 1



Monetary policy in Singapore has thus continued to be formulated on the basis of growth and inflation considerations, although MAS is cognisant of the impact that monetary policy may have on financial stability. Thus, MAS has chosen to deal with the destabilising effects of capital inflows through targeted macroprudential and administrative measures.

MAS has termed this approach "Monetary Policy Plus". While monetary policy is focused on price stability, it couples with micro- and macro-prudential supervision to ensure financial stability. Effectively, under the overarching target of "macroeconomic stability", we monitor consumer price stability, asset price developments, credit growth and financial stability. These multiple targets demand multiple policy instruments.

Consequently, the Singapore government introduced seven rounds of cooling measures between 2009 and 2013 in response to rising property prices. The latest set of measures was introduced in January 2013. Broadly, these measures sought to ensure a stable and sustainable property market and encourage financial prudence among property purchasers. The latest measures included higher stamp duty rates, tighter loan-to-value ratios, limits on mortgage tenures, and caps on mortgage servicing ratios. The government has also stated that it would continue to monitor market conditions closely and take further measures if necessary.

6. Conclusion

Singapore's choice of the exchange rate (rather than interest rates) as the principal tool of monetary policy is predicated on its small size and high degree of openness to trade and capital flows. A basic philosophy underlying Singapore's exchange rate policy is to preserve the purchasing power of the Singapore dollar in order to maintain confidence in the currency and preserve the value of workers' savings. While the recent financial crisis has made the conduct of monetary policy more challenging, MAS has not had to take extraordinary monetary policy measures.

Just as some of Singapore's particular characteristics necessitate a unique monetary policy framework, there are several structural factors which have allowed the exchange rate to function effectively as an intermediate target of monetary policy. First, the country's high savings rates in the public sector due to the government's budgetary surpluses, along with the contribution of companies and households to the mandatory CPF, have led to the continual withdrawal of liquidity from the banking system. MAS accordingly injects liquidity into the market by selling Singapore dollars and buying US dollars to offset government and CPF flows.

Secondly, MAS has gained credibility through its pre-emptive and effective policy decisions. Its single-mindedness and discipline in focusing on medium-term inflation trends, coupled with its robust reserves, have earned the trust of the market and public. It adopts a medium- to long-term orientation in formulating monetary policy, anticipating a six- to nine-month lag between implementation and impact. This medium-term orientation has helped to reduce the volatility of the exchange rate, anchoring the economy and providing certainty for businesses and households.

Finally, the effectiveness of Singapore's exchange rate policy is due to the broader framework that its monetary policy is part of. Monetary policy does not work in a vacuum. Instead, it is situated within a wider framework of sound and consistent policies, including flexible prices and wages, a deep and efficient financial market, a robust corporate sector and prudent fiscal policy. In Singapore, the close coordination between fiscal policy and monetary policy has successfully ensured macroeconomic stability in the past three decades, including the recent financial crisis.