A closer look at...

Monetary Policy & the Economy

Monetary Authority of Singapore
The Economics Explorer aims to provide an accessible introduction to a broad selection of economic issues, ranging from monetary policy to trade to inflation. It is targeted at anyone interested in taking a closer look at the economic issues affecting Singapore.

This issue explores the nuts and bolts behind monetary policy in Singapore – what its objectives are, how it is conducted by the MAS, and how it affects the economy. It can be downloaded from the MAS website at www.mas.gov.sg.
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Monetary Policy & the Economy

Sep 1999
The Monetary Authority of Singapore (MAS) is the central bank of Singapore. Like any other central bank in the world, one of its primary responsibilities is the conduct of monetary policy. This is clearly spelt out in the mission and objectives of MAS as "to conduct monetary and exchange rate policies to promote sustained non-inflationary economic growth".

**What is Monetary Policy?**

In its narrowest definition, monetary policy is the central bank's policy regarding the supply of money in the economy. By changing the amount of money available, the central bank hopes to influence the level of economic activities, which in turn affects the general level of prices in the economy.

**How does a central bank conduct monetary policy?**

There are a number of ways in which central banks can increase or decrease money supply. Some central banks affect money supply directly by increasing or decreasing what is known as the monetary base. This is made up of currency in circulation and cash reserves which commercial banks keep with the central banks. Other central banks affect money supply by influencing the interest rates at which commercial...
banks can borrow from them, otherwise known as the discount rate. In some small open economies, the central banks choose to anchor their monetary policy to the exchange rate, either by pegging the value of the home currency rigidly to another currency as in the case of a currency board, or by managing it more flexibly against a basket of foreign currencies. The choice of monetary policy instruments depends very much on the circumstances facing each economy.

Objectives of Monetary Policy

Many economists now believe that the central bank should focus primarily on achieving price stability, or low inflation, in its conduct of monetary policy. This is based on cross-country experience over the last 3 decades which shows that price stability is essential for sustainable economic growth.

A trade-off between inflation and growth?

Not too long ago, during the 1960s and 1970s, economists and policy makers used to believe that they could bring down unemployment by deliberately stimulating the economy with monetary or fiscal policy, and incurring somewhat higher inflation in the process.

This belief, however, had been overturned by new economic theories and empirical evidence which emerged subsequently. The trade-off between a bit more inflation and a bit less unemployment can still be made in the short term. But experience has shown that attempts to apply it in the long term do not work. They simply result in ever-rising inflation.
Price stability is now generally accepted as laying the best foundation for sustained economic growth. As the Chairman of the US Federal Reserve, Dr Alan Greenspan, once defined it:

"For all practical purposes, price stability means that expected changes in the average price level are small enough and gradual enough that they do not materially enter business and household decisions."

Most economists and policy makers consider these “small and gradual” changes in the price level to be in the ballpark of 0-3% annual change in the consumer price index (CPI). In such an environment, the prices of goods and services are not distorted by inflation and can serve as clearer signals and guides so that resources are allocated more efficiently. In addition, an environment of price stability is believed to encourage saving and investment as it prevents the value of assets from being eroded by unanticipated inflation.
Since 1981, monetary policy in Singapore has been centred on the exchange rate. This reflects the fact that, in the small and open Singapore economy, the exchange rate is a more effective tool in maintaining price stability.

Why is monetary policy centred on the exchange rate?

The choice of exchange rate, rather than money supply or interest rate, as the principal tool of monetary policy has been influenced by Singapore’s small size and the high degree of openness to trade and capital flows.

Singapore’s small size and lack of natural resources means that we have to import even the most basic of our daily requirements, and export to pay for these requirements. This has resulted in a very open trade policy, with very few import restrictions.

Just how open is Singapore to trade?

As we can see from the chart on the following page, both imports and exports amount to well over 100% of Singapore’s GDP. Another indication of the openness of the Singapore economy is the high import content of final expenditure. As a matter of fact, out of every $1 spent in Singapore, 54 cents go to imports*.

* According to the 1990 Input-Output Tables published by the Dept of Statistics
What are the consequences of Singapore’s small size and openness?

Firstly, because it is too small to influence world prices, Singapore is a price taker. Producers in Singapore have to accept prices dictated by global supply and demand. In addition, the high import content of domestic goods means that changes in world prices or in the exchange rate have a powerful influence on domestic prices, either directly or indirectly. Changes in the exchange rate to offset changes in foreign price levels would thus have a significant effect on inflation.

Besides its direct impact on import prices, there is another, more indirect channel by which exchange rate can affect domestic inflation. Because of the importance of exports in Singapore, the exchange rate can influence overall demand in the economy, and thus affect the demand for domestic resources, such as labour. For instance, a weak exchange rate can lead to the overheating of the economy, a tighter labour market and consequently, higher growth of domestic wages and other costs.

Managing the exchange rate is thus the most effective way of maintaining price stability in a small, open economy like Singapore. The importance of external demand also means that traditional monetary policy instruments such as money supply or interest rates, which largely affect domestic demand, do not have a significant influence on the overall level of economic activity and, therefore, inflation in Singapore.
What are the implications of Singapore’s openness to capital flows? In addition, because of Singapore’s role as an international financial centre, the economy is very open to capital flows. As a result, small changes in the difference between domestic and foreign interest rates can lead to large and quick movements of capital. This makes it difficult to target money supply in Singapore. Likewise, domestic interest rates are largely determined by foreign rates and market expectations of the movement of the Singapore Dollar. As we can see from the chart below, the 3-month domestic interest rate has closely tracked its US$ interest rate equivalent over the years. Thus, any attempt by MAS to raise or lower domestic interest rates over a long period of time, would be thwarted by a shift of funds into or out of Singapore.

In the context of free capital mobility, the choice of the exchange rate as the focus of monetary policy in Singapore must imply relinquishing control over domestic interest rates and money supply. This policy trilemma is what economists called the **Unholy or Impossible Trinity**. In Singapore, therefore, monetary policy is synonymous with exchange rate policy.
**Conduct of Monetary Policy**

The MAS manages the Singapore dollar (S$) exchange rate against a trade-weighted basket of currencies of Singapore's major trading partners and competitors. The basket is composed of the currencies of those countries which are the main sources of imported CPI inflation and competition in export markets. It is constructed this way to incorporate the two major mechanisms by which the exchange rate affect inflation in Singapore, as will be elaborated in the following section. The composition of this basket is reviewed and revised periodically to take into account changes in Singapore’s trade patterns.

The MAS maintains the trade-weighted exchange rate broadly within an undisclosed target band. How much the trade-weighted S$ is allowed to appreciate or depreciate depends on a number of things, including the level of world inflation and domestic price pressures. The objective of exchange rate policy is to ensure low inflation as a sound basis for sustained economic growth.

The MAS intervenes in the foreign exchange market to prevent excessive fluctuations in the S$ exchange rate, consistent with the exchange rate policy and underlying economic fundamentals.

To complement its exchange rate policy, the MAS also conducts money market operations to ensure that there is an appropriate level of liquidity in the banking system. The money market instruments used for this purpose are mainly foreign exchange swaps, direct borrowing or lending from banks, as well as transactions involving government securities.
Transmission Mechanism of Monetary Policy

As indicated earlier, there are two main channels or avenues through which the exchange rate policy of the MAS affects inflation and economic activity in Singapore. These channels, along with several lesser ones, are collectively known as the "transmission mechanism" of monetary policy.

The first and most direct channel through which monetary policy in Singapore affects inflation is via the effect of the exchange rate on import prices.

To understand how this channel works, let us look at a simple example. Suppose the MAS depreciates the trade-weighted value of the S$, by selling S$ in exchange for foreign currency in the foreign exchange
market. This means that the prices of foreign goods and services which Singapore imports will be higher when converted into S$. This has the direct effect of raising the prices that an average Singaporean household has to pay for imported goods and services that are consumed immediately. It also has the indirect effect of raising the prices of locally produced goods and services that compete with imports or use imported inputs. Some of these price changes, however, may take some time to work through the economy, depending on the speed and extent with which importers and retailers pass through the higher prices to consumers.

The second important channel through which monetary policy affects inflation in Singapore is its effect on aggregate demand in the economy.

Continuing with our previous example, when the MAS depreciates the trade-weighted value of the S$, goods and services produced in Singapore would be more competitively priced in world markets in the short term. This would increase the demand for Singapore’s exports from the rest of the world.

To meet the increase in export orders, companies in Singapore would raise their level of production, and require more production workers. As companies compete for the limited pool of workers in Singapore, they would inadvertently bid up wages. This is particularly so when the economy is operating at full or close to full capacity, as was the case in Singapore during much of the last 2 decades. The end result is higher inflation, as companies pass through the higher wages that they have to
pay, into higher prices that they charge consumers. This transmission mechanism, i.e. Channel B, is somewhat more complex than Channel A and may take longer to work through the economy.

**A Weaker Exchange Rate for More Competitive Exports?**

At first glance, it appears tempting to depreciate the nominal exchange rate so as to raise the competitiveness of our exports and boost export growth. Upon closer inspection, however, we find that because of the transmission mechanisms mentioned earlier, the export competitiveness gained from weakening the exchange rate is actually much lower than expected.

A weaker exchange rate would indeed cause exports to rise in the short term as predicted. However, this high export growth would cause the economy to overheat, pushing up the demand for domestic resources like labour, and lead eventually to higher wages and prices via Channel B of the monetary policy transmission mechanism. A weaker exchange rate would also directly result in the higher cost of imported inputs for manufacturers via Channel A. This would offset the gains in export competitiveness, leaving us back in Square One.

**Channel C : Impact on Domestic Demand**

Besides the two main channels of transmission described above, the MAS' monetary or exchange rate policy also impacts the economy through its influence on domestic demand, for example, via the interest rate, as can be seen in the following box.

Changes in the monetary or exchange rate policy can also influence consumer confidence, expectations about the future course of the economy, and asset prices, although their ultimate impact on domestic demand and its timing are even more difficult to assess.
How do Interest Rates affect the Economy?

How does a change in exchange rate impact interest rates?

The interest rate is the price at which money today may be traded off for money at a future date. In other words, it is the rate of return to savings and the cost of borrowing. The precise impact on domestic interest rates of a change in the trade-weighted S$ exchange rate is uncertain, as it depends on people's expectations about inflation, foreign interest rates as well as the exchange rate.

The central bank can affect interest rates through its influence on market expectations of the future movement of the exchange rate. For instance, during the first half of the 1990s, MAS had a policy of appreciating the trade-weighted exchange rate so as to dampen inflation. As a result, the market expected the S$ exchange rate to appreciate over time, and this led to lower domestic interest rates.

And how do interest rates affect the economy?

Interest rates impact the economy via their effect on domestic spending on investment and consumption. For example, a rise in interest rates increases companies' borrowing costs, thereby reducing profits and increasing the return that they will require from new investment projects. As a result, this will make companies less likely to undertake new investments. However, the importance of this effect on companies depends on the nature of their business, their size and sources of finance.

In Singapore, it is reckoned that companies in the manufacturing sector may be relatively less affected by interest rate increases, as the sector is dominated by multinational corporations (MNCs) which rely on their own sources of funds, e.g. from head offices. In contrast, companies in the building and construction sector may be more severely affected as they are more reliant on bank borrowing and their cashflows are much tighter given the long duration of their projects.

Higher interest rates also affect the individuals and households, as they face new rates on their savings and debts, in particular mortgages. Any rise in mortgage interest rate will increase the monthly mortgage payments of
This will reduce the disposable income of households and, hence, the amount available to them to spend on goods and services. Moreover, higher interest rates provide a greater incentive for the individuals and households to save for the future rather than to consume now. The end result is a decline in domestic demand and lower inflationary pressures.

**Constraints of Monetary Policy**

While it can ensure price stability for sustainable economic growth, monetary policy per se cannot affect the long-term growth capacity of the economy. In the long run, the growth of an economy is determined by supply-side factors such as technological progress, capital accumulation, and the size and quality of the labour force. Some government policies may be able to influence these supply-side factors, but monetary policy generally cannot do so directly. By providing a sound and stable macroeconomic environment, however, monetary policy can ensure the smooth and efficient functioning of the economy, thereby sustaining its growth.

Apart from monetary policy, there are a number of other forces affecting output and prices in the economy. For example, the government's actions on its tax and expenditure programmes, i.e. fiscal policy, can have a significant impact on the economy as well as influence people's behaviour and expectations.

Fiscal policy can either constrain or abet central banks in their efforts to ensure low and stable inflation. It is well known that in the post-war years, many newly independent countries launched ambitious social programmes without sufficient tax revenues to pay for them. Often,
governments resorted to borrowing and printing money to overcome their revenue shortfalls, leading to high indebtedness and inflation.

**Singapore’s Experience: Fiscal Policy Reinforcing Monetary Policy**

In Singapore, the government has refrained from artificially boosting demand through fiscal stimulus and generous welfare programs, preferring to pursue the route of job creation and free market competition. Fiscal policy in Singapore is therefore directed primarily at promoting long-term economic growth, rather than cyclical adjustment or income distribution.

Because of the conservative and prudent fiscal policy, which has resulted in consistent budget surpluses over the years, monetary policy in Singapore has been freed of the responsibility of financing the government. This has enabled the MAS to concentrate on its primary goal of ensuring price stability and preserving the value of the S$.


Other forces affecting demand or supply can be difficult to predict and can affect the economy in unforeseen ways. This is particularly so for a small open economy like Singapore.
On the demand side, these include such external shocks as the Asian financial crisis, which saw a slump in external demand for Singapore's goods and services. On the supply side, these include the oil shocks of the early 1970s and 1980s, and natural disasters such as floods or droughts, which raise costs and affect production. As these shocks affect output and prices, monetary policy can attempt to counter their adverse effects on the economy, although it cannot offset them completely.

**Monetary Policy... An Art or A Science?**

There are a number of limiting factors that make the practice of monetary policy more an art rather than a science.

**Limitations of Monetary Policy...**

First, despite the best effort of the national account statisticians, the central bank does not have up-to-the-minute, reliable information about the state of the economy. Economic data are limited because of lags in their publication as it takes time to capture the myriad transactions in the economy. Besides, some sectors of the economy are difficult to quantify and national account statisticians have to make do with estimates.

Second, the central bank, or anyone for that matter, does not have a perfect knowledge of how the economy works: its multitude of linkages, causes and effects.

Third, monetary policy affects the economy with long and variable lags. The extent of the monetary policy impact can also be uncertain as the structure of the economy changes over time.

How MAS deals with these limitations...

For these reasons, the MAS relies on a host of economic indicators as guides to its monetary or exchange rate policy. These include monetary indicators such as the trade-weighted exchange rate, interest rate and money supply, and economic variables such as labour market conditions, inflation and GDP growth.
Because of the lags in monetary policy, the MAS formulates and conducts monetary policy in a forward-looking manner. This is accomplished by simulating and evaluating the impact of monetary policy over the medium term using some macro-econometric models of the economy.

As no model can fully capture the workings of the economy, the MAS is not wedded to any single model and, instead, relies on several models and tools to inform on its policy. Uncertainty and the less-than-perfect knowledge of the economy also call for some degree of humility and vigilance in the conduct of monetary policy, as well as regular reviews of policy as new information becomes available.
The Economics Explorer series

#1  The Monetary Authority of Singapore  
    Sep 1999

#2  Monetary Policy and the Economy  
    Sep 1999

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