

Central bank foreign reserves

The level of foreign exchange reserves held by central banks has grown substantially in recent years. This article describes the main reasons that countries maintain reserves. No single reason appears to predominate and no single reference is used to determine the optimum size of reserves. Iceland has used three-month merchandise imports as a reference for the minimum level of reserves, but this has not been an absolute criterion. Although the Central Bank of Iceland's foreign reserves have expanded greatly over the past three years, they are by no means large by various common measurements.

Introduction

The International Monetary Fund's (IMF) Balance of Payments Manual contains the following definition of foreign exchange reserves: "Reserve assets consist of those external assets that are readily available to and controlled by monetary authorities for direct financing of payments imbalances, for indirectly regulating the magnitude of such imbalances through intervention in exchange markets to affect the currency exchange rate, and/or for other purposes." Reserve assets comprise monetary gold, foreign exchange assets and other claims in foreign currency. In most instances, reserves are safeguarded and invested by central banks, and this is also the case in Iceland. The US dollar is by far the most important currency in global reserves, accounting for some 66% of the total at the end of 2004 according to the IMF Annual Report 2005.

Most countries maintain foreign reserves. However, they do so for different reasons and there is no single predominant method for determining their size. Central banks held an estimated 3.8 trillion US dollars in foreign reserves at the end of 2004, and the amount is growing steadily. A number of emerging Asian economies have been building up massive reserves in recent years and show no sign of stopping. Industrial countries in general have not been increasing their reserves, although exceptions can be found.

Countries do not normally set defined targets for the minimum, maximum or optimum size of foreign reserves. However, three broad principles have guided the size of reserves over the years. Until the middle of the twentieth century, the prevalent view was that the size of reserves should be connected with the amount of money in circulation. This was during the era of the gold standard and resembles the practice of countries with currency boards today. Around the middle of the century, the size of reserves was first linked to the scope of international trade and such criteria were evolved until the 1980s. It was widely held that reserves should be

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Box 1

Central Bank of Iceland
foreign reserves

Foreign reserves are covered in Articles 4 and 20 of Act No. 36/2001 on the Central Bank of Iceland.

"Article 4

The Central Bank of Iceland shall undertake such tasks as are consistent with its role as a central bank, such as to maintain external reserves and promote an efficient and safe financial system, including payment systems domestically and with foreign countries."

"Article 20

The Central Bank of Iceland shall maintain foreign exchange reserves in accordance with its objectives and role. The Board of Governors lays down rules on the management of the foreign reserves to be approved by the Supervisory Board, cf. Article 28.

The Central Bank is authorised to raise loans abroad for the purpose of strengthening its foreign exchange reserves. It is also authorised to participate in a co-operative effort among central banks and international banking or financial institutions for the purpose of strengthening the foreign exchange reserves of other participants."

The legislation does not specify what the role of the foreign reserves shall be. In the notes to the bill which was passed as the Central Bank Act, it was explained that the task of most central banks was to maintain their countries' foreign exchange reserves, while one of the Central Bank of Iceland's roles was to ensure the external financial security of the country. The Board of Governors of the Central Bank of Iceland sets rules specifying the maintenance and investment of the foreign reserves, which also stipulate the minimum level of reserves and their currency composition.

sufficient to respond to fluctuations in the current account balance under the Bretton Woods fixed exchange-rate system. The break-up of the Bretton Woods system in the early 1970s was followed by liberalisation of cross-border capital movements, which were increasingly seen as providing a new benchmark for the optimum size of reserves, especially for emerging market economies. Reserves were expected to suffice to meet certain financial liabilities of the economy, such as short-term debt, long-term debt service and funding of the current account deficit for the ensuing twelve months. Such criteria are considered particularly appropriate for countries that could face a prolonged loss of access to foreign credit, for example if they lost confidence of creditors and investors. This notion came to the fore after the serious financial crises that struck emerging market economies in the 1980s and 1990s. References of this kind are less appropriate for more developed countries with floating exchange rates and easy access to international financial markets. Despite all these perspectives that have been put forward, there is no universal reference for the size of reserves.

The purpose of maintaining reserves

Much has been written about the purpose of maintaining reserves (e.g. Archer and Halliday (1998), Nugée (2000), Williams (2003) and IMF (2004)). Two viewpoints can be said to predominate – the monetary policy perspective and financial stability considerations – both of which can be seen as directly and indirectly guiding Iceland's foreign reserve policy.

Monetary policy perspective

Foreign reserves perform an important function under a fixed exchange-rate regime. A central bank operating a fixed exchange-rate policy needs to trade domestic currency in the forex market to balance supply and demand, which will keep the exchange rate stable or, where applicable, within the fluctuation bands. To conduct such transactions, the central bank needs to maintain a sufficient level of foreign reserves to maintain confidence in the fixed exchange-rate policy. Smaller reserves should generally suffice under a floating exchange rate, since the central bank does not need to intervene to defend the currency.

Whether foreign reserves need to be maintained at all under a floating exchange rate has been questioned from a monetary policy perspective. While it is not obvious that they do, a central bank may conceivably decide to intervene in the forex market if it considers the equilibrium real exchange rate and market rate to be severely misaligned, or if large, sudden swings in the exchange rate threaten normal market trading. A central bank may also feel compelled to intervene in the forex market to counter inflation that is driven by rising import prices when the domestic currency depreciates. And even if a central bank with a floating exchange rate opts out of all market intervention, which would make foreign reserves unnecessary as a monetary policy instrument, they could still be desirable since the markets and rating agencies tend to see them as enhancing the credibility of monetary policy.

When Iceland's financial markets began to evolve and an active forex market developed, the Central Bank's foreign reserves took on a new role as a monetary policy instrument of serving the fixed exchange-rate regime in place at that time. This was demonstrated when the Central Bank drew on reserves to intervene in the forex market in 2000 and 2001 with the aim of dampening exchange-rate volatility and keeping the króna within the fluctuation bands. Under the new monetary policy framework introduced in March 2001, which allows the exchange rate to be determined by market forces, the Central Bank has primarily traded in the forex market with the aim of building up a credible level of foreign reserves or to procure foreign currency for the Treasury to service its foreign debt. In fact, the joint declaration of the Government of Iceland and Central Bank of Iceland from March 2001 states that the Central Bank will intervene in the foreign exchange market if it deems such action necessary in order to promote the inflation objective or if it thinks that exchange rate fluctuations might undermine financial stability. However, after the fixed exchange rate was replaced by the main monetary policy

objective of price stability, the Central Bank has less need to maintain foreign reserves for its monetary strategies.

Financial stability

Sovereign states seek to have reserves as a contingency against shocks such as unexpected fluctuations in the current account, changes in access to foreign markets or natural catastrophes. Thus the reserves serve to ensure that adequate funds are always available to soften the impact of sudden shocks.

Over the past few decades, the Central Bank of Iceland has traditionally maintained its foreign reserves at a level close to the equivalent of roughly three months' imports excluding marine vessels and aircraft. Initially the reserves were mainly regarded as a contingency to smooth over interruptions in foreign trade, at a time when export sector income was highly volatile and Iceland was a signatory to the Bretton Woods system. Reserves were intended to meet fluctuations in imports and exports, in much the same way as households and businesses require liquid funds to cover their day-to-day operating expenses. Thus the reserves could be used to balance currency inflows and outflows under unexpected circumstances.

Broadly speaking, one of the aims in maintaining reserves is to ensure that the forex market is functional and that intervention is possible in the event of market failure. Inadequate foreign reserves could spark a speculative attack on the króna, especially if investors believed that the Central Bank would intervene in the market at some point. A floating exchange rate substantially reduces the probability of such an attack. If reserves are generally regarded as sufficient, they boost confidence in the currency and can reduce the likelihood of sudden investor flight. Growing domestic portfolio investments by non-residents mean that much greater amounts could conceivably be moved out immediately if investors lose confidence in the currency. The same kind of market disruption could be prompted by domestic investors, and hardly on a smaller scale.

Sudden changes often take place in international forex markets, causing sharp and rapid appreciation or depreciation of currencies. A possible catalyst could be unexpected economic news from the country in question. Although the Icelandic forex market is not international in the true sense of the term, and has only three resident banks as market makers, in principle it still obeys the same laws as markets in other countries where the exchange rate is determined by supply and demand. A central bank under a floating exchange-rate regime is not obliged to respond to fluctuations in the forex market, even if they are sharp.

The Central Bank of Iceland might need to be prepared to resolve a range of problems that could undermine the effectiveness of the forex market. Possible scenarios are the withdrawal of a market maker, the market drying up, abnormally wide spreads or other unexpected shocks. The Central Bank might suddenly need to play a larger role in daily interbank market trading in the króna to ensure that it did not stop. Otherwise, the resulting disruption could undermine financial stability. Nonetheless, a central bank would presumably resort

to direct intervention only if it deemed this necessary for contributing to the attainment of the inflation target or if it saw the exchange-rate swings as a threat to financial stability. The joint declaration of the Government of Iceland and Central Bank of Iceland from March 2001 allows for such an eventuality.

Furthermore, the foreign reserve may be seen as a reserve fund for meeting shocks in the market, e.g. tight liquidity among financial companies caused by problems in refinancing their foreign debt. Possibly such a problem could be resolved with emergency lending facilities. It could prove difficult to decide which circumstances would call for measures of this kind. Setting the level of reserves on the basis of this consideration could produce a moral hazard, and central banks as a rule do not announce the existences of safety nets.

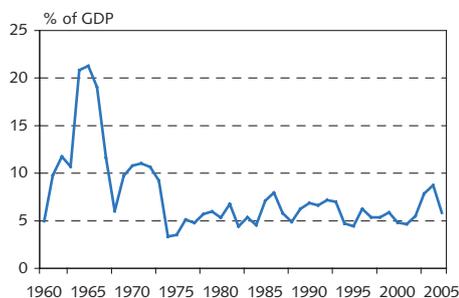
The Central Bank of Iceland Act states that in special circumstances when the Central Bank deems it necessary in order to protect the safety of the domestic financial system, the Bank may issue guarantees to credit institutions in the event of a liquidity squeeze or grant other loans to them on special terms and against collateral or against other conditions laid down by the Bank. A facility of this sort would be subject to strict conditions and only be authorised when there was no doubt that the relevant institution or institutions were not in difficulties in meeting capital requirements. In other words, the Central Bank may make conditional loans in the event of a liquidity squeeze, e.g. to prevent a loss of confidence in the financial system which could spawn a wider financial crisis. However, it is clear that this authorisation does not provide a universal guarantee for the financial system – nor should such a principle be instrumental in deciding the level of reserves. The Icelandic financial markets are growing rapidly. The banks' foreign debts have soared, making access to foreign credit correspondingly more important.

The option of falling back on reserves if economic shocks disrupt normal trading and income flow is one of the fundamentals on which the Treasury's credit rating is based. Thus the level of the reserves affects the sovereign rating. After large amounts of foreign currency had been deployed against the rapid depreciation of the króna in 2000 and 2001, the three agencies that rate the Republic of Iceland (Moody's, S&P and Fitch) all urged that the Central Bank's external position should be significantly strengthened. At that time, the Central Bank relied on short-term foreign borrowing to maintain its foreign reserves above a specified minimum level, which caused its external position (net foreign reserves) to weaken. Rating agencies have not stipulated an optimum level, but it is clear that a minimum level of reserves must be at hand to maintain the Republic's creditworthiness in foreign markets, and thereby improve access by the Treasury and domestic companies, including banks, to foreign credit.

Other perspectives

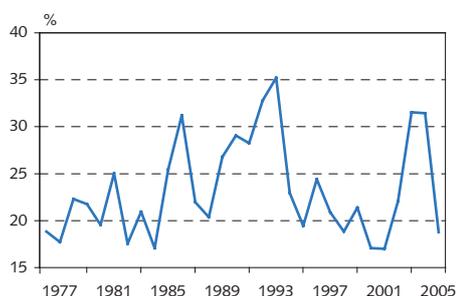
In Iceland and elsewhere, the objective of foreign reserves is to ensure that sufficient funds are available to service the Treasury's foreign liabilities. Countries with thin forex markets, which may be substantially affected by their Treasury's purchases of foreign currency

Chart 1
Foreign reserves as a % of GDP 1960-2005¹



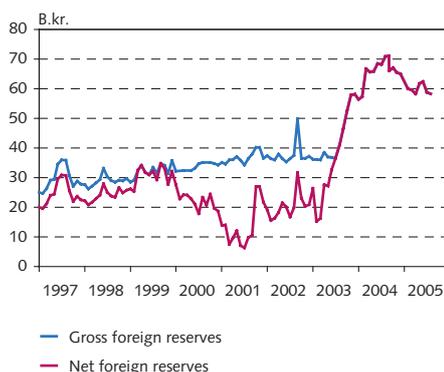
1. Estimate for 2005.
Source: IMF and Central Bank of Iceland calculations.

Chart 2
Foreign reserves as a % of merchandise imports (fob) 1976-2005¹



1. Estimate for 2005.
Source: IMF and Central Bank of Iceland calculations.

Chart 3
Gross and net foreign reserves
January 1997 - August 2005



Source: Central Bank of Iceland.

in exchange for domestic currency, need to have reserves that can act as a stabiliser when countries service their foreign debt.

One of the tasks of the Central Bank of Iceland has been to procure foreign currency for the Treasury to meet its foreign debt service and other foreign costs that it incurs. Previously it was considered important to have a reserve fund to ensure smooth trading and as a contingency against tightening of foreign credit markets. Foreign credit markets have been offering a wider range of credit facilities in recent years and the Treasury's upgraded ratings have improved its access to them. The Treasury now has unhindered market access and the risk of long closures is negligible. In the recent term the Treasury has been retiring foreign debt and the substantial improvement in its debt position bolsters its position as a borrower even further.

A large proportion of the capital and reserves of central banks is tied up in foreign reserves. Interest income on reserves is used to meet their operating costs and some countries mention this as one of the reasons for maintaining them.

The cost of holding reserves

Both costs and risks are involved in holding foreign reserves. Discussions of foreign reserves often tend to focus on them as asset portfolios and ignore the liabilities side. Essentially there are three ways to finance reserves (Nugée (2000)). All are based on the assumption that it is normal for a Treasury's assets to be denominated solely in domestic currency. In effect, acquiring foreign currency-denominated assets represents a decision not to own assets denominated in domestic currency, whereby government authorities sacrifice the potential return from investing in their own society, which is one of their main roles. External reserves are funded with either foreign borrowing, currency swaps or straightforward purchases of foreign currency in exchange for domestic currency.

The cost of holding reserves is most commonly defined as the difference between a Treasury's return on risk-free investments such as US, UK or German Treasury bonds and its own borrowing terms. This is based on the premiss that foreign reserves are indirectly built up with foreign borrowing, so that an increase in reserves causes a corresponding increase in Treasury liabilities. Holding reserves therefore entails the opportunity cost of not using those funds to retire Treasury debt. Investment income on reserves in excess of the returns on a risk-free investment is a reward for risk-taking and therefore does not offset the cost of keeping the reserves. However, it may be pointed out that a Treasury with no reserves would probably as a rule face higher credit costs.

Iceland's foreign reserves and reference levels

At the end of August 2005, the Central Bank of Iceland's foreign reserves stood at 58.3 b.kr. A clear distinction must be made between net reserves and gross reserves, small as the difference may be today. Net reserves are defined as gross reserves less foreign short-term borrowing and foreign deposits in the Central Bank. Deposits

in the Central Bank are almost exclusively from the Treasury; the commercial banks' foreign currency accounts in the Central Bank were discontinued in 1997.

In the past, when Iceland's foreign reserves fell below the minimum stipulated in the rules set by the Board of Governors, foreign loans were taken to bridge the gap. The difference between net and gross reserves is largely explained by such borrowing.

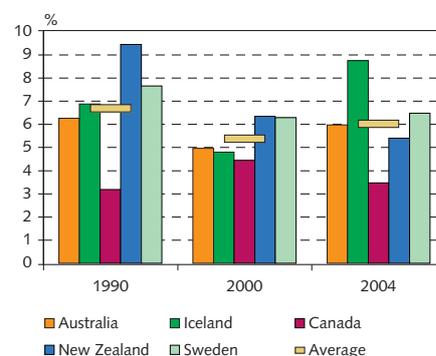
Over the period since 1997, when the domestic forex market had largely assumed the shape it retains today, net reserves reached a low of 6.2 b.kr. in July 2001. In November that year the Treasury borrowed to strengthen the Central Bank's reserves, which had been severely depleted since the beginning of 2000 by its repeated interventions in the forex market. In September 2002 it was decided to begin regular purchases of currency in the domestic market first in order to eliminate the Central Bank's short-term debt, and then boost its net reserve position. These purchases continued until the end of 2004. From the beginning of 2005, the aim of the Central Bank's regular market purchases of foreign currency was to meet the Treasury's requirements for external debt service. In May this year a discretionary purchase of an extra 100 m. US dollars was announced in connection with additional prepayment of the Treasury's foreign loans. At the beginning of September the Central Bank announced an increase in its regular currency purchases in connection with the Treasury's schedule for prepaying more foreign debt than had originally been planned. Without these purchases, the Central Bank could only have sold the Treasury more currency than originally planned by depleting its foreign reserves.

The Central Bank's references for determining its minimum level of foreign reserves are historical in origin. The reasons for using them are to build confidence in the Bank's monetary policy and to uphold sustainability considerations, including financial stability and creditworthiness.

Compared with other countries, the Central Bank of Iceland held an acceptable level of foreign reserves at the end of 2004 as a proportion of GDP and broad money (M3), and in terms of how many weeks of merchandise imports they would cover. Relative to Iceland's total external debt, however, the reserves were fairly small in terms of such references. Furthermore, the Central Bank's reserves have fallen somewhat as a proportion of GDP since the end of 2004. It is inadvisable to draw too strong conclusions from this comparison, given the diverse economies of the sample countries and the fact that data are not necessarily fully comparable. Major sectors of the Icelandic economy earn much of their income in foreign currencies, e.g. fisheries, aluminium smelting and tourism. A common feature of the countries in the comparison is that they have an independent currency, floating exchange rate and inflation target. The countries are Australia, Canada, New Zealand and Sweden.

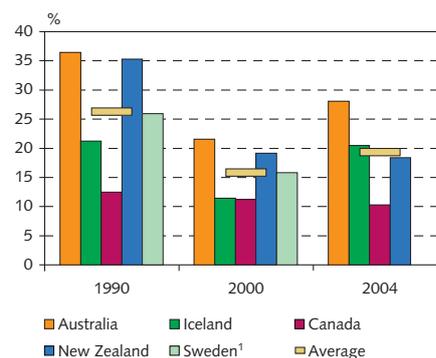
To summarise, there is no absolute reference for the level of foreign reserves. When the current reference was last set, it took into account most of the points mentioned above, which could produce a very wide range of outcomes. It was decided not to abandon the

Chart 4
Foreign reserves as a % of GDP



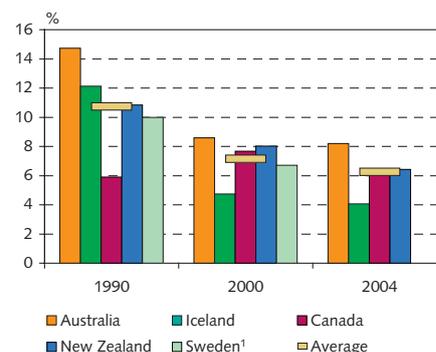
Source: IMF.

Chart 5
Foreign reserves as a % of merchandise and services imports



1. Figures are not available for Sweden in 2004.
Source: IMF.

Chart 6
Foreign reserves as a % of external debt of the economy



1. Figures are not available for Sweden in 2004.
Source: IMF.

Table 1 Foreign reserves in Iceland and selected countries

End of 2004 unless otherwise stated

<i>Foreign reserves as a % of:</i>	Iceland	Sweden	New Zealand	Australia	Canada
GDP	8.8	6.5	5.4	6.0	3.5
Broad money (M3)	12.0	[12.2] ²⁰⁰³	5.6	[7.0] ²⁰⁰³	6.1
Forex market turnover	11.07	2.39	3.12	1.36	3.13

<i>Foreign reserves in equivalent weeks of merchandise imports</i>	Iceland	Sweden	New Zealand	Australia	Canada
Total	15.7	11.6	11.9	17.5	6.4
Excluding monetary gold	15.3	11.5	11.9	17.0	6.4

merchandise trade reference that has been used. At that time the level of reserves was close to the reference and it was considered inadvisable to increase it. A running average for three-month merchandise imports over the preceding five years was used as a reference, and if the reserves fall below that level there is no longer any obligation to borrow funds to maintain a specific minimum.

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