VIII. RESERVE MANAGEMENT

Eesti Pank's foreign exchange reserves serve as the cover of the Estonian kroon and are used to ensure the stability of the kroon. According to the principles of the currency board, the foreign exchange reserves must cover all Eesti Pank's kroon liabilities, including the banknotes and coins issued, and the accounts of commercial banks with Eesti Pank. The central bank proceeds from strict risk constraints in investing the reserves taking into account the primary objectives – **preservation of assets and liquidity. Return** comes third on the list of objectives.

ORGANISATION OF RESERVE MANAGEMENT

Foreign Exchange Reserve Structure

The reserve has been subdivided into two – **the liquidity** and **the investment portfolio.** A small part of the reserves is held in **gold.**

The liquidity buffer accounts for some 5% of the total foreign exchange reserves and has been invested in the international overnight market. These are highly liquid assets required for operating the currency board system and which the central bank can use at any time for currency exchange transactions with domestic credit institutions. These assets cover the monthly foreign currency demand of the banking system.

The second and larger part of the foreign exchange reserves is also invested in international financial markets. The objective of the investment portfolio is to generate optimum earnings above money market interest rates during a global economic cycle, subject to the imposed constraints. The assets of the investment portfolio are mainly invested in the liquid bond markets of leading industrial countries.

It is important to achieve optimum balance of risk and return in investing the foreign exchange reserve. The main risks associated with investing the currency reserve are exchange rate, interest rate, credit, and liquidity risks. All these are measured and managed through optimum diversification of the investment portfolio and careful choice of instruments and counterparts. Besides, general framework rules apply to each of the risks and these exclude risks unacceptable for the central bank. Risk limits are constantly being monitored. All risk limits depend on the size of Eesti Pank's excess reserves.

As the Estonian kroon is pegged to the euro, the base currency of the foreign exchange reserve, the euro, also dominates in the reserve structure. When investing outside the euro markets derivatives are used to hedge currency risks. Therefore, exchange rate changes have no significant impact on the value of the reserves.

Interest risk is actively managed in Eesti Pank through a **benchmark portfolio.** This determines the average risk level the central bank is prepared to take and at the same time also serves as the standard for reserve central bank management efficiency. There are also limits to the deviation from the benchmark portfolio, which allow the Bank to achieve results different from the benchmark yield on the basis of forecasts.

Although the liquidity portfolio has been separated from the foreign exchange reserves, high liquidity requirements apply to the investment portfolio as well. In order to guarantee high liquidity, only instruments with active and extensive secondary market are used. Limits have also been set on the volume of issue and the share of the securities Eesti Pank is allowed to own.

Credit risk or the risk of default is managed through issuer limits and the size and proportion of instruments, based on the ratings of leading international rating agencies. The bulk of the reserve is invested into government securities and reverse repurchase agreements, which bear a minimum credit risk. Making credit risk management more efficient is one of the strategic objectives of Eesti Pank[1].

Investment Process

Investment decisions in Eesti Pank are made on the basis of economic indicators, forecasts by market participants, and many other factors. The time horizon of such decisions may fluctuate from minutes to years, and depending on the situation, the risk level of each decision is different, but still remains within the guidelines. The selection of instruments, risk level, and market depends on the idea and time horizon of the investment decision. It is presumed that the best result is achieved through investment decisions that are independent from each other, i.e. portfolio managers do not make collective investment decisions.

Eesti Pank applies two different ways of making decisions – subjective and model-based. The first is based on traditional analysis of economic indicators, views of other market players, experience and intuition, while the other proceeds from the models evaluated, optimised, and tested on the basis of historical time-series.

Technical analysis data, economic indicators and/or indicators characterising investor behaviour can serve as inputs for models. Also combinations of the above-mentioned indicators are possible. In 2003, the central bank used one technical model following long-term trends and one one-month investment horizon model that used both economic and technical data.

Since 2002 Eesti Pank has distributed the risk budget between different portfolios and external asset managers without allocating a proportional sum of money from the foreign exchange reserve. According to the current data, such approach is quite innovative among European central banks.

INVESTMENT RESULTS IN 2003 AND ASSOCIATED FACTORS

International Financial and Commodity Markets

In 2003, major **stock markets** witnessed a turnaround in the downtrend that had started in 2000. Improved economic outlook and growth in corporate profits induced investors to allocate more money into equities again. Therefore the US S&P 500 index soared by 26%, the Japanese Nikkei 225 index by 24%, and the Eurobloc 300 index by 16% (see Figure 8.1). Strong recovery in the technology sector was marked by relatively faster growth in the prices of these shares: e.g. the US Nasdaq composite surged by 50%.

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[1] See the Strategic Development Plan of Eesti Pank for 2004–2006, V, 20.

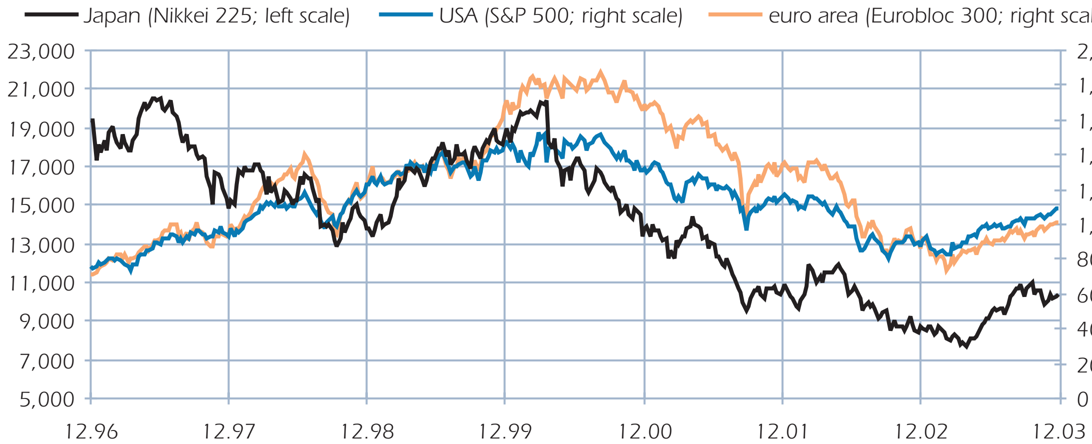

Figure 8.1. Dynamics of the major stock markets in 1997–2003

In the **bond market,** yields moved in both directions during the year, but an increase in long-term yields was predominant. During the first six months the leading central banks continued to reduce base rates so as to stimulate economic growth and reduce the risk of an unwelcome fall in inflation. The US Federal Reserve cut the base interest rate by 25 and the European Central Bank by 75 basis points (to 1% and 2% respectively). In the second half of the year economic recovery was accompanied by monetary policy stability and an increase in long-term interest rates (see Figure 8.2). The yield of 10-year bonds in the United States soared by 43, in Japan by 46, and in the euro zone by 9 basis points per year.

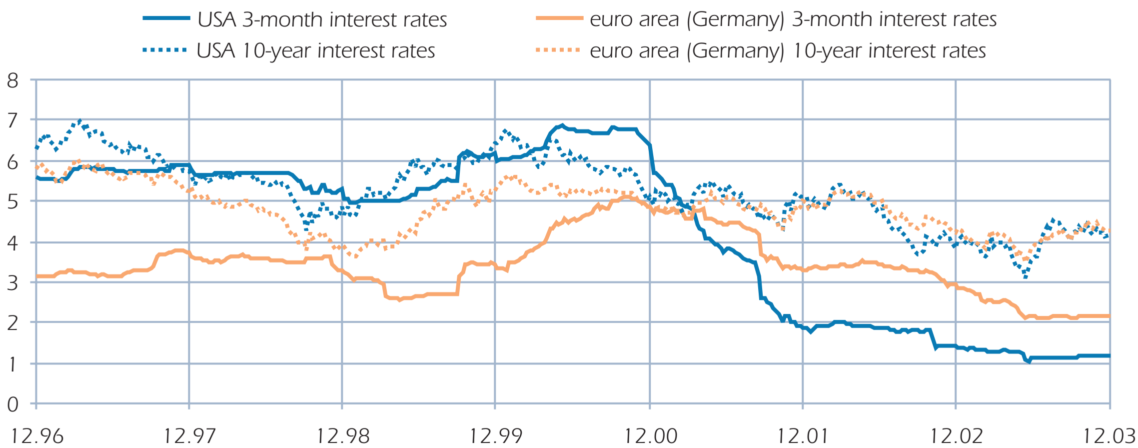

Figure 8.2. Interest rates in the United States and euro area in 1997–2003 (%)

In the **currency markets,** the decline of the US dollar against other major currencies continued. The euro strengthened against the dollar by 20% while the Japanese yen rose by 11% (see Figure 8.3). The main reason behind the cheapening dollar was the continuing imbalance of the US economy, above all its large current account deficit, which has been increasingly difficult to finance through capital inflow. The euro was also supported by international investors (including NCBs) placing their funds increasingly more into assets denominated in euros.

Commodity markets were characterised by an upward trend of prices. The CRB index composed of the prices of 22 principal commodities soared by 16%, reflecting a rise in demand arising from global economic recovery. The price of crude oil fell below 30 dollars per barrel after the Iraqi conflict, but soared to 32.5 dollars by the end of the year (total increase about 4%). Due to the weaker dollar, which induced the investors to hedge the risks related to a possible increase in the inflation rate, the price of gold soared by 19% (see Figure 8.4).

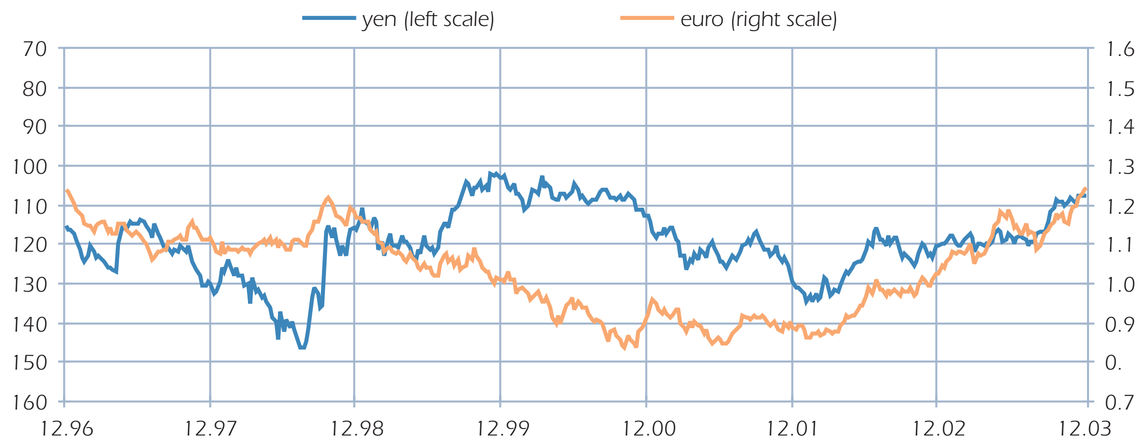

Figure 8.3. Exchange rates of the euro and yen against US dollar in 1997–2003

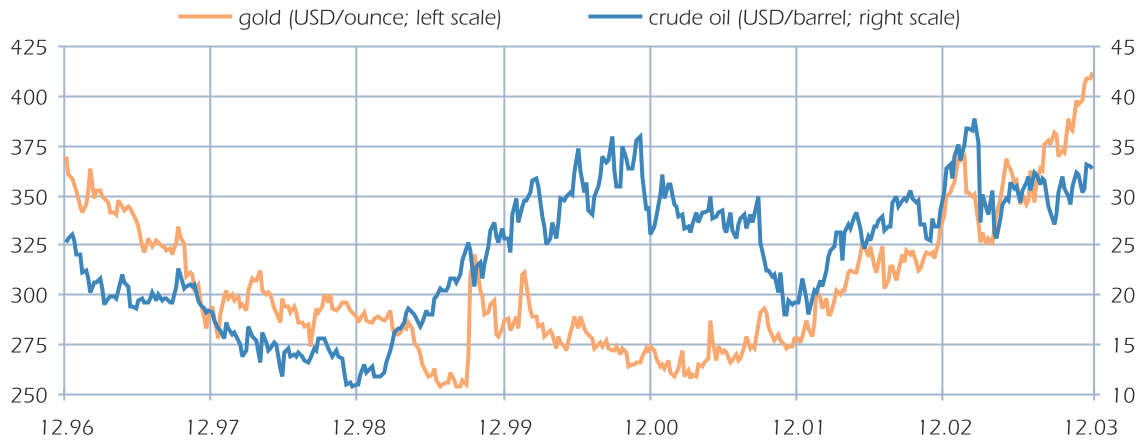

Figure 8.4. The price of crude oil and gold in 1997–2003

Investing Foreign Exchange Reserves

At the end of 2003 the foreign exchange reserves amounted to **16.7 billion kroons.** Year-on-year the reserves grew by about 11%. Excess, i.e. net reserves accounted for some 20% of the total reserve – **3.3 billion kroons,** having grown approximately by 6% in a year. The continued growth in the net reserve was based on profitable investment of the foreign exchange reserves. At the end of 2002 it was assumed that during the year the interest rates both in the United States and the euro zone would rise moderately and the yield curves would steepen. Long-term interest rates rose indeed, but due to the expansionary monetary policy of larger central banks and geopolitical instability short-term interest rates moved in the opposite direction. If interest rates rise, bond prices fall, and therefore the return on the portfolio composed of bonds decreases. **As a consequence of successful investing the profitability of Eesti Pank's investments stood at 2.99% in 2003, outpacing the predicted level by 0.16 percentage points.** Due to faster than predicted growth in the foreign exchange reserves the income exceeded the predicted level by more than 20%. Cumulative formation of income has been shown in Figure 8.5.

The results of applying the benchmark portfolio principle have been explained in Figure 8.6, which compares the profitability of the foreign exchange reserves in recent years with that of the money market.

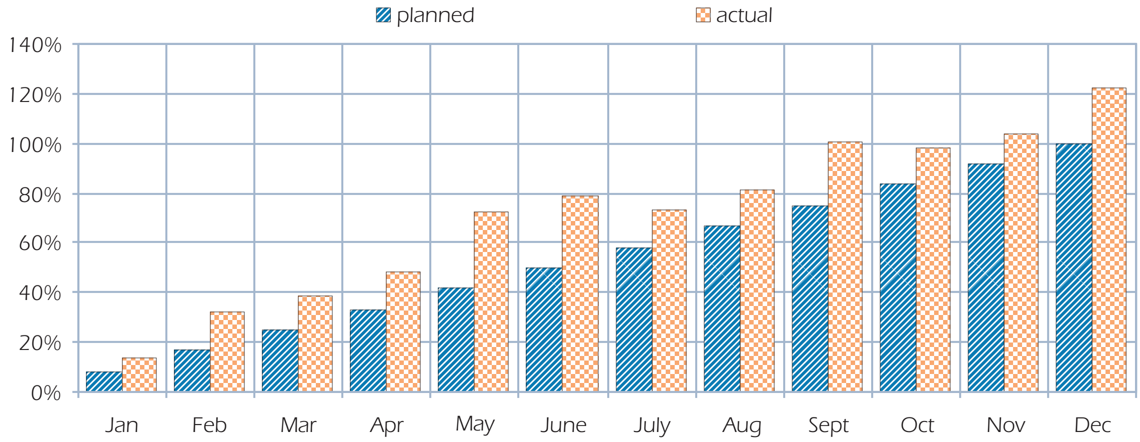

Figure 8.5. Cumulative return on foreign exchange reserve investments in 2003

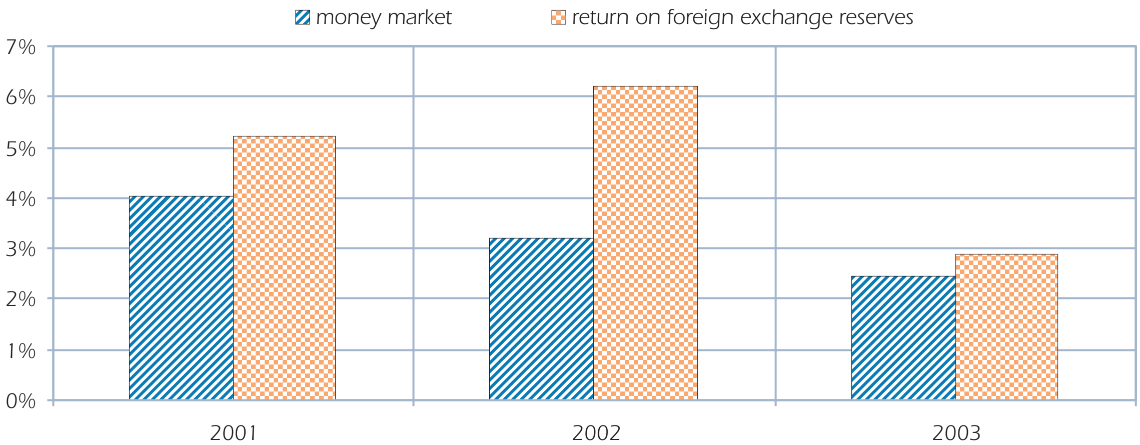

Figure 8.6. Return on foreign exchange reserves compared to the money market

Adjustments in Benchmark Portfolio

Eesti Pank's foreign exchange reserve benchmark portfolio is based on the criterion that the quarterly return must be non-negative, i.e. the assets are preserved. If the structure of the benchmark portfolio no longer ensures this due to a fall in market rates and/or higher volatility, the risk level of the portfolio has to be lowered. But if market rates increase and/or their volatility decreases, the risk level of the benchmark portfolio can be increased.

Eesti Pank's Monetary Policy Committee considers changing the benchmark portfolio when the average duration of the theoretical and benchmark portfolios differ more than by 10%. Lowering the risk level of the benchmark portfolio essentially means reducing the average investment duration – more assets are invested into low-volatility money market instruments offering a stable yield. As a result, the accrued interests compensate for the volatility-caused potential price fluctuations. A decline in the market interest rates called for a change in the structure of the benchmark portfolio in March 2003. The average duration of the US portfolio declined by 16% – from 0.93 to 0.78 years while the duration of the euro area portfolio shortened by 18% – from 1.45 to 1.18 years. Due to some technical adjustments in compiling the benchmark portfolio a new portfolio had to be set up in May. Table 8.1 shows the structure of the new benchmark portfolio, which the Monetary Policy Committee of Eesti Pank put into effect as of 1 May and which was valid until the end of 2003. The average duration of the benchmark portfolio was 1.06 years whereas the weight of economic regions remained unchanged.

Table 8.1. Structure of Eesti Pank benchmark portfolio since 1 May 2003

Economic region	1-3 years	3-5 years	5-7 years	7-10 years	Over 10 years	Duration	Share
Europe	10.97%	5.73%	4.05%	3.07%	1.71%	1.23	60%
USA	9.27%	4.12%	2.92%	2.13%	0.00%	0.78	40%

Results of External Asset Managers

At the end of 2003 Eesti Pank used two external asset managers to invest the foreign exchange reserves. One of them – State Street Global Advisors – began to cooperate with Eesti Pank already in August 2002, while the other – ABN Amro Asset Management – was engaged in November 2003. Development and expansion of the external asset managers programme is also one of the strategic objectives of Eesti Pank[2].

The external managers are allowed to use only a certain part of the total foreign exchange risk limit, but they are not funded by the proportional part of the reserves. Investment positions are realised on behalf of the central bank through different derivative instruments; classical fixed income and currency instruments are not used. In 2003, external asset managers earned Eesti Pank about 16 million kroons, which accounted for around half of the additional income exceeding the benchmark portfolio (see Figure 8.7). Taking into consideration the size of the risk limit allocated to them, this can be considered a good result.

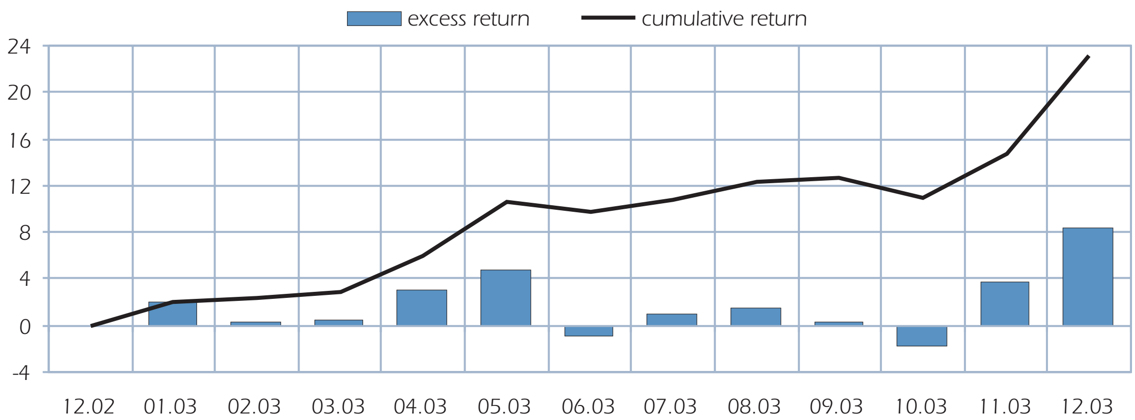

Figure 8.7. Excess return above the return of the benchmark portfolio in 2003 (in basis points)

Providing Asset Management Services to Public Sector

Eesti Pank continues cooperation with several public sector institutions. The central bank provides its services to the Ministry of Finance in risk management and trade execution for the Stabilisation Reserve. Investment decisions regarding placement of these funds are still made by the State Treasury. Eesti Pank provides full package of asset management services to the Guarantee Fund.

[2] See the Strategic Development Plan of Eesti Pank for 2004–2006, V, 20.