

FOREIGN EXCHANGE RESERVES

Management of the foreign exchange reserves

4 | 2022

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REPORT FOR
FOURTH QUARTER
2022

1 MANAGEMENT OF THE FOREIGN EXCHANGE RESERVES

The foreign exchange reserves are to be sufficiently liquid to be available for use in foreign exchange market transactions or as part of the conduct of monetary policy with a view to promoting financial stability and to meet Norges Bank's international commitments. The aim of the management of foreign exchange reserves is the highest possible return within the applicable risk limits. The reserves are divided into an equity portfolio, a fixed income portfolio and a petroleum buffer portfolio. The foreign exchange reserves may be invested in cash deposits, Treasury bills, government bonds and equities listed on a regulated and recognised exchange

The fixed income portfolio's benchmark index is a market-weighted index of all nominal government bonds with a residual maturity of between one month and 10 years issued by China, France, Germany, Japan, the UK and the US. The equity portfolio's benchmark index is a tax-adjusted global equity index for medium and large-sized companies limited to nine currencies. The strategic equity allocation of the total equity and fixed income portfolio is 20%.

The purpose of the petroleum buffer portfolio is to provide for an appropriate management of the government's need for converting foreign currency and NOK, and to make transfers to and from the Government Pension Fund Global (GPFG). The petroleum buffer portfolio is invested in short-term fixed income instruments. No benchmark index has been set for the petroleum buffer portfolio.

MAIN POINTS FROM 2022 Q4

- The market value of the foreign exchange reserves at the end of 2022 Q4 was NOK 614.4bn, a decline of NOK 123.6bn since 2022 Q3.
- The return on the foreign exchange reserves was 1.4% in international currency terms. The return on equity investments was 7.2%, while the return on fixed income investments was 0.1%. In NOK terms, the return on the foreign exchange reserves was -4.8%.
- The size and liquidity of the foreign exchange reserves are regarded as sufficient for meeting Norges Bank's commitments.
- Norges Bank's equity is regarded as sufficient to fulfil the Bank's purpose.

INTERNATIONAL CURRENCY

The foreign exchange reserves are held for the purpose of crisis management. Movements in the krone exchange rate will affect Norges Bank's equity, but not the Bank's ability to meet commitments in foreign currency. The petroleum buffer portfolio, which is not held for the purpose of crisis management, is excluded from the measurement of return.

Foreign exchange reserves

The market value of the foreign exchange reserves was NOK 614.4bn at the end of 2022 Q4. The value declined by NOK 123.6bn in Q4. The return in international currency terms increased the value by NOK 8.7bn, while a stronger krone reduced the value by NOK 48.2bn. Net outflows amounted to NOK 84.0bn, primarily from the petroleum buffer portfolio. In 2022, the market value fell by NOK 32.1bn.

Chart 1-1 Composition of the foreign exchange reserves. In billions of NOK

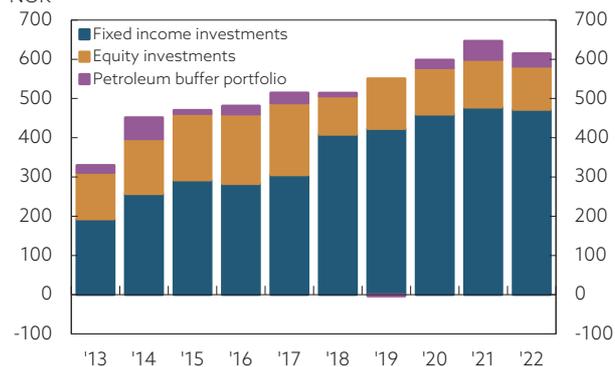


Table 1-1 Market value

	2022 Q4			Foreign exchange reserves	2022			Foreign exchange reserves
	Fixed income investments	Equity investments	Petroleum buffer portfolio		Fixed income investments	Equity investments	Petroleum buffer portfolio	
<i>In billions of NOK</i>								
Market value (opening)	501.9	111.5	124.5	737.9	477.7	122.0	46.8	646.5
Market value (closing)	472.0	110.4	32.0	614.4	472.0	110.4	32.0	614.4
Change in market value	-30.0	-1.0	-92.6	-123.6	-5.7	-11.5	-14.9	-32.1
Net transfers	-1.5	0.0	-82.5	-84.0	-2.4	0.0	-23.2	-25.6
Return in NOK terms	-28.5	-1.0	-10.1	-39.6	-3.3	-11.5	8.3	-6.5

Tabell 1-2 Details of fixed income and equity investments

	2022 Q4		Total	2022		Total
	Fixed income investments	Equity investments		Fixed income investments	Equity investments	
<i>In billions of NOK</i>						
Return in NOK terms	-28.5	-1.0	-29.5	-3.3	-11.5	-14.8
Return in international currency	0.5	8.2	8.7	-36.0	-19.6	-55.6
Movements in the krone exchange rate	-28.9	-9.2	-38.1	32.8	8.1	40.9
<i>In percent</i>						
Return in international currency terms	0.1	7.2	1.4	-7.5	-16.8	-9.4
Return in NOK terms	-5.7	-0.9	-4.8	-0.7	-9.4	-2.5
Relative return in NOK terms	0.01	0.03	-	0.07	0.10	-
Expected relative volatility in NOK terms (annualised)	0.03	0.06				

Fixed income investments

The market value of the fixed income portfolio was NOK 472.0bn at the end of 2022 Q4, a decrease of NOK 30.0bn from the previous quarter. A stronger krone reduced the value by NOK 28.9bn, while the return in international currency terms increased the value by NOK 0.5bn, equivalent to 0.1%. Net outflows from the fixed income portfolio amounted to NOK 1.5bn, reflecting transactions with the IMF.

Chart 1-2 Return in international currency terms. Fixed income investments. Percent



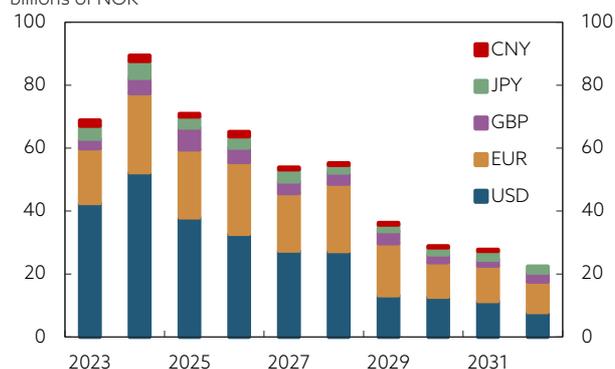
Chart 1-3 Relative return in NOK terms. Fixed income investments. Basis points



Table 1-3 Fixed income investments by currency at the end of 2022 Q4. Market value in billions of NOK

	Market value	Share	Duration	Yield
Total	471.96	100.00	3.59	3.33
CNY	9.45	2.00	3.47	2.49
EUR	160.11	33.92	3.96	2.61
GBP	33.10	7.01	3.94	3.52
JPY	33.19	7.03	4.19	0.19
USD	236.11	50.03	3.21	4.27

Chart 1-4 Principle and coupon due per year at the end of 2022 Q4. In billions of NOK



US Despite volatility through the quarter, US government bond yields were little changed at the end of 2022 Q4. The two-year yield rose by 15 basis points, approximately 10 basis points more than the 10-year yield. On the other hand, the five-year yield fell somewhat. The Federal Reserve raised its policy rate by 125 basis points in 2022 Q4. Investments denominated in USD earned a return of 1%, primarily owing to current interest income.

EUROPE The rise in European sovereign yields continued in 2022 Q4. German two-year yields rose by 90 basis points, while the 10-year yield rose by just under 50 basis points. The ECB raised its policy rate by 75 basis points in October and 50 basis points in December. Investments denominated in EUR earned a negative return of 1.8%, primarily owing to the rise in yields.

UK In the UK, inflation rose further in 2022 Q4 and the Bank of England raised its policy rate by 125 basis points to 3.5% in order to curb price pressures. UK government bond yields nevertheless fell. Investments denominated in GBP earned a return of 3.6%, primarily owing to the decline in yields.

JAPAN Japanese yields rose in 2022 Q4. The Bank of Japan made changes to its yield curve control strategy and widened the fluctuation range for the 10-year yield from 0 ± 25 basis points to 0 ± 50 basis points. Investments denominated in JPY earned a negative return of -0.7%.

CHINA Chinese government bond yields fell in Q4 and short-term yields rose more than long-term yields. The two-year yield rose by approximately 20 basis points. The Chinese 10-year yield ended the quarter slightly above 2.8%. Investments denominated in CNY earned a return of 0.3%.

Equity investments

The market value of the equity portfolio was NOK 110.4bn at the end of 2022 Q4, a decline of NOK 1.0bn since the end of 2022 Q3. The return in international currency terms increased the market value by NOK 8.2bn. A stronger krone reduced the value of the portfolio by NOK 9.2bn.

The return on the equity portfolio was 7.2% in Q4, in international currency terms. European equities

posted a return of 16.8%, North American equities, 4.3% and Asian equities, 10.4%. Energy sector equities posted the strongest return in Q4, 19.3%. Equities in finance, manufacturing and health care accounted for the largest return on the portfolio. Equities in the durable goods sector posted the weakest return in Q4, -2.5%.

Chart 1-5 Return in international currency terms. Equity investments.



Chart 1-6 Relative return in NOK. Equity investments.



Table 1-4 Equity investments by sector and relative to the benchmark index. At the end of 2022 Q4. In billions of NOK

	Market value	Share	Relative (pp)
Materials	4	4%	-0.02
Durable goods	15	14%	0.00
Consumer goods	7	7%	-0.03
Energy	5	4%	0.01
Financials	16	15%	0.08
Health care	17	15%	-0.03
Industrials	15	13%	-0.03
Real estate	3	3%	-0.03
Technology	22	20%	0.01
Telecommunications	3	3%	0.02
Utilities	3	3%	0.02

Table 1-5 Equity investments by currency and relative to the benchmark index. At the end of 2022 Q4. In billions of NOK

	Market value	Share	Relative (pp)
AUD	3	3 %	0.02
CAD	3	2 %	-0.38
CHF	3	3 %	-0.09
DKK	1	1 %	-0.02
EUR	11	10 %	0.31
GBP	4	4 %	-0.64
JPY	8	8 %	0.09
SEK	1	1 %	0.09
USD	76	69 %	0.62

Petroleum buffer portfolio

The market value of the petroleum buffer portfolio was NOK 32bn at the end of 2022 Q4, a reduction of NOK 92.6bn for the quarter. During Q4, NOK 149.4bn worth of foreign exchange was purchased from the State's Direct Financial Interest (SDFI), and NOK 423.1bn worth of foreign exchange was transferred to the GPF from the petroleum buffer portfolio. At the same time, Norges Bank purchased NOK 191.2bn worth of foreign exchange in the market. The return on the portfolio came to NOK -10.1bn, primarily owing to a stronger krone.

Financial risk

The foreign exchange reserves are invested in foreign currency, while Norges Bank's liabilities are mainly denominated in NOK. This means that movements in the krone exchange rate will have a considerable impact on Norges Bank's earnings in NOK terms. A stronger krone will reduce the krone value of the foreign exchange reserves, while a weaker krone will increase the krone value. For the purpose of crisis management, however, the krone value of the foreign exchange reserves will be of secondary importance. Excluding changes in the krone value, the financial risk associated with the foreign exchange reserves comprises market, credit and counterparty risk.

The foreign exchange reserves' market risk is determined by the composition of investments and movements in equity prices, interest rates and credit spreads. For equity and fixed income investments, expected absolute volatility at the end of 2022 Q4, excluding exchange rate movements, was 21.3% and 3.4%, respectively. This corresponds to an expected annual fluctuation in value of approximately NOK 23.6bn and NOK 16.0bn, respectively. At the same time, expected relative volatility for equity and fixed income investments was 0.06 and 0.03 percentage point, respectively.

EXPECTED RELATIVE VOLATILITY

Under the Executive Board's principles for the foreign exchange reserves, maximum expected relative volatility is set at 50 basis points for both fixed income and equity portfolios. This means that the return on the portfolio relative to the benchmark index is expected to be within ± 50 basis points in two out of three years.

Credit and counterparty risk is defined as the risk of losses if issuers or counterparties default on payment obligations. The credit risk on bond and Treasury bill investments in the foreign exchange reserves is low. The lowest credit ratings from the three largest rating agencies Fitch, Moody's and Standard & Poor's, are equivalent to AAA for the German government, AA+ for the US government, AA for the French government, AA- for the UK government, A+ for the Chinese government and A for the Japanese government.

Chart 1-7 Absolute volatility, excluding exchange rate movements. Foreign exchange reserves. Percent

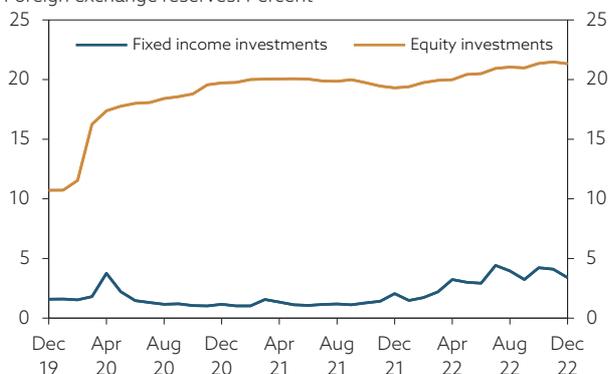


Chart 1-8 Relative volatility, including exchange rate movements. Foreign exchange reserves. Basis points



2 COMMITMENTS TO THE IMF

Pursuant to the Central Bank Act, Norges Bank shall meet the commitments ensuing from membership of the International Monetary Fund (IMF). This membership entails a standing commitment to furnish foreign exchange for IMF loans to member countries.

Loan resource commitments under the quota, the New Arrangements to Borrow (NAB), bilateral agreements and the Poverty Reduction and Growth Trust (PRGT)¹ totalled SDR 10 823m on 31 December 2022. At the end of the quarter, the IMF had drawn SDR 1 443m. The total remaining amount that can be drawn under these arrangements is SDR 9 695m. The quota subscription, which determines a country's standing in the IMF, applies to all member countries, but participation in the funding of the IMF's borrowing arrangements is voluntary. The size and liquidity of the foreign exchange reserves are assessed to be sufficient to meet Norges Bank's international commitments.

Table 2-1 Details of lending programmes. Amounts in thousands of SDRs

	Agreed amount	Amount drawn	Amount remaining	Change in amount drawn	
				2022 Q4	2022
Total	10 823 080	1 442 743	9 695 013	14 903	76 106
Quota	3 754 700	1 092 881	2 661 819	26 841	105 741
NAB	3 933 380	18 762	3 914 618	-4 600	-27 449
Bilateral agreements	2 585 000	0	2 585 000	0	0
PRGT ^{Error! Bookmark not defined.}	550 000	331 101	533 575	-7 338	-2 186

Table 2-2 Details of SDR holdings. Amounts in thousands

	SDR allocations	SDR holdings	Remaining voluntary purchases	Change in SDR holdings	
				2022 Q4	2022
SDR holdings	5 161 781	5 473 797	2 268 874	105 409	119 264

INTEREST RATE ON THE ARRANGEMENTS

Norges Bank receives SDR interest payments on the reserve position², the NAB, PRGT and SDR holdings, and pays the SDR interest rate on SDR allocations. The SDR interest rate is a weighted average of the yields on three-month government securities in the countries/currency areas included in the SDR basket. The floor for the SDR interest rate is 0.05%. For the reserve position, an interest deduction is applied for any burden sharing³. Under the burden sharing mechanism, member debtors and lenders share the cost of settling overdue obligations on outstanding credit to the IMF through an interest rate adjustment.

¹ The commitments include the 2020 and 2022 arrangements under PRGT, but not the 2010 and 2016 agreements, as they can no longer be drawn on. The same applies for the total remaining amount that can be drawn. Amount drawn includes all arrangements.

² The reserve position is equal to the amount drawn on Norway's quota and corresponds to the difference between the quota and the IMF's krone deposit with Norges Bank.

³ The basis for the calculation is the reserve position less SDR 60m. The reason for the deduction is that, prior to 1978, only 75% of the quota was included in the calculation.

QUOTA SUBSCRIPTIONS are the IMF's primary source of funding and reflect the member country's relative size in the global economy. Norway's quota subscription is SDR 3 755m. The amount drawn increased by SDR 26.8m during 2022 Q4 (Table 2-1 and Chart 2-1).

NAB (New Arrangements to Borrow) represents the IMF's second line of defence. Under the NAB, a number of member countries and institutions are committed to lending additional resources to the IMF. The IMF Executive Board must specifically decide to activate the NAB to fund new lending by drawing on the NAB. The government, represented by the Ministry of Finance, is the IMF's contractual counterparty. Commitments under the NAB amount to SDR 3 933m. Total outstanding drawings were reduced by SDR 4.6m during Q4 (Table 2-1 and Chart 2-2).

Chart 2-1 Quota. In billions of SDRs

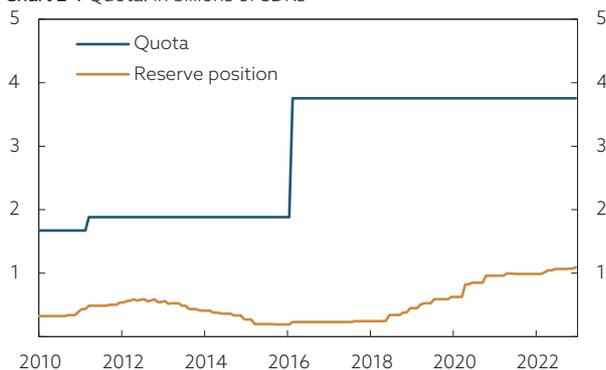
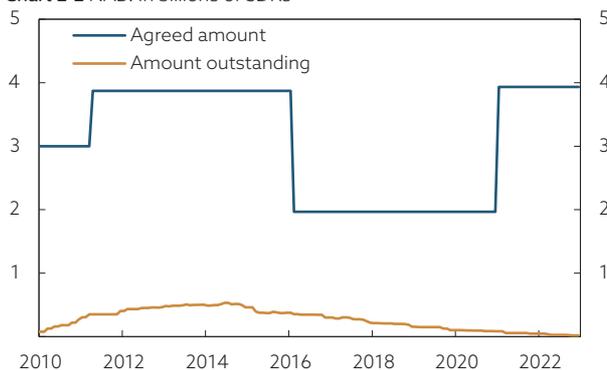


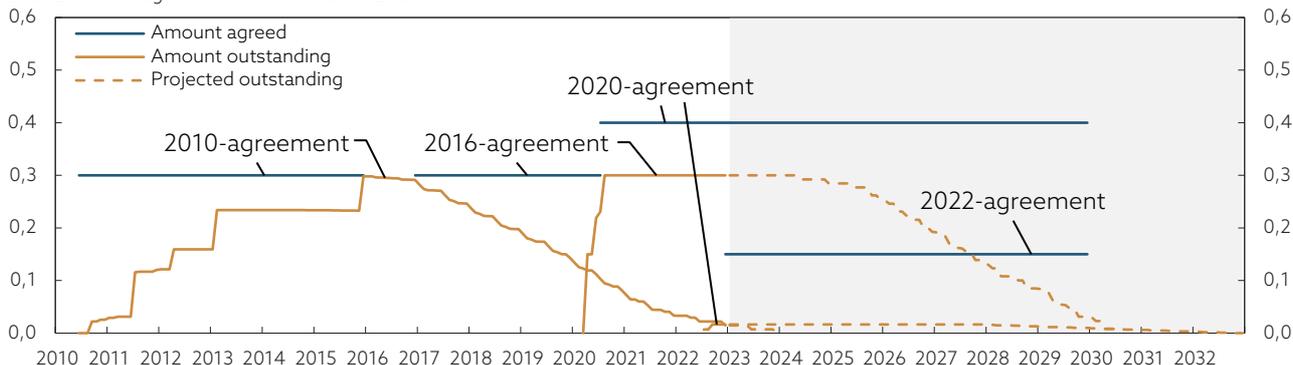
Chart 2-2 NAB. In billions of SDRs



BILATERAL AGREEMENTS serve as the IMF's third line of defence after quota subscriptions and the NAB. The current agreement, which entered into force on 1 January 2021 and applies until 31 December 2023, is for a SDR 2 585m borrowing facility. The agreement can be extended by one year. At the end of 2022 Q4, no amounts had been drawn on this agreement. Norges Bank is the IMF's contractual counterparty under the bilateral borrowing agreement. Norges Bank's borrowing agreements with the IMF are subject to the approval of the Ministry of Finance (cf Section 3-10, Subsection 2, of the Central Bank Act).

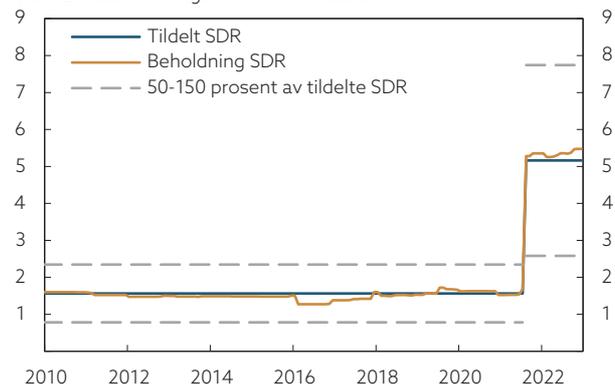
PRGT The Ministry of Finance has signed loan agreements with the IMF under the PRGT, which contribute to the IMF's borrowing arrangements for low-income member countries. Norges Bank signed borrowing agreements in both 2010 and 2016, and under each, Norway provided SDR 300m. These facilities are now fully drawn and under the agreements, only repayments will be made (Table 2-1 and Chart 2-3). In 2020, a borrowing agreement for SDR 400m was entered into. No amount was drawn under this agreement in Q4. In December 2022, an additional borrowing agreement for SDR 150m was entered into. This agreement had not been drawn on at the end of Q4. Norges Bank is the agent for PRGT loans and administers the commitments.

Chart 2-3 PRGT agreements. In billions of SDRs



SDR HOLDINGS are allocated by the IMF to member countries. Member countries, the IMF and prescribed holders⁴ may change their SDR holdings by purchasing from or selling to each other. Individual member countries and prescribed holders have entered agreements with the IMF on participating in SDR trading arrangements intended to support SDR liquidity. In 2009, Norges Bank entered into such an agreement with the IMF on the voluntary purchase and sale of SDRs, as long as holdings remain within 50%-150% of SDR allocations. Thus, Norges Bank's holdings shall be between SDR 2 581m and SDR 7 743m. Purchases of SDRs are charged to the foreign exchange reserves. The agreement also gives Norges Bank the right to sell SDRs. In 2022 Q4, SDR holdings increased by around SDR 105.4m. At the end of Q4, Norway's holdings amounted to SDR 5 474m (Table 2-2 and Chart 2-4).

Chart 2-4 SDR holdings. In billions of SDRs



⁴ Prescribed holders of SDRs are 15 official entities authorised by the IMF Executive Board to hold SDRs, although they do not receive SDR allocations. Prescribed holders consist of four currency union central banks (European Central Bank, Bank of Central African States, Central Bank of West African States, and Eastern Caribbean Central Bank), eight development institutions (African Development Bank, African Development Fund, Asian Development Bank, International Bank for Reconstruction and Development and the International Development Association, Islamic Development Bank, Nordic Investment Bank, and International Fund for Agricultural Development), and three intergovernmental monetary institutions (Bank for International settlements, Arab Monetary Fund and Latin American Reserve Fund).

ANNEX KEY FIGURES

Table 1 Key figures at quarter-end. Annualised values in international currency terms. Percent

	Past year	Past three years	Past five years	Past 10 years
Return on the foreign exchange reserves	-9.37	-0.14	1.27	3.63
<i>Fixed income investments</i>				
Return on fixed income investments	-7.50	-2.06	-0.49	0.44
Return on the benchmark index	-7.56	-2.09	-0.49	0.44
Relative return	0.07	0.03	0.00	0.00
<i>Equity investments</i>				
Return on equity investments	-16.76	6.16	7.38	10.77
Return on the benchmark index	-16.86	6.05	7.33	10.61
Relative return	0.09	0.10	0.05	0.16

Table 2 Duration of and yield on fixed income investments. Past five quarters

	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4
Duration	3.59	3.64	3.69	3.78	3.83
CNY	3.47	3.50	3.40	3.42	3.37
EUR	3.96	4.04	4.14	4.22	4.24
GBP	3.94	3.97	4.26	4.13	4.19
JPY	4.19	4.18	3.72	4.10	4.26
USD	3.21	3.26	3.32	3.40	3.47
Yield	3.33	3.06	1.95	1.31	0.40
CNY	2.49	2.25	2.36	2.40	2.38
EUR	2.61	1.89	0.94	0.21	-0.47
GBP	3.52	4.06	1.95	1.38	0.70
JPY	0.19	0.04	0.01	0.02	-0.06
USD	4.27	4.18	2.90	2.20	0.94