

FOREIGN EXCHANGE RESERVES

Management of Norges Bank's foreign exchange reserves

3 | 2018

NOVEMBER 2018

REPORT FOR
THIRD QUARTER 2018



NORGES BANK

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MANAGEMENT OF
NORGES BANK'S FOREIGN
EXCHANGE RESERVES

Management of the foreign exchange reserves

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MANAGEMENT OF
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EXCHANGE RESERVES

The foreign exchange reserves shall be available for transactions in the foreign exchange market as part of the conduct of monetary policy or with a view to promoting financial stability and to meet Norges Bank's international commitments. 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 and sovereign bonds, and equities listed on a regulated and recognised exchange. The fixed income portfolio's benchmark index is a market value-weighted index of all nominal government bonds with a residual maturity of between one month and 10 years issued by 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 35%.

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 (GPF). 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 2018 Q3

- The market value of the foreign exchange reserves was NOK 503.0bn at the end of 2018 Q3, an increase of NOK 0.9bn over the quarter.
- The return on the foreign exchange reserves was 1.9%, 5.4% on equity investments and negative 0.3% on fixed income investments.
- As a consequence of the foreign exchange reserves' portfolio rebalancing regime, NOK 21.3bn worth of foreign exchange was transferred from the equity portfolio to the fixed income portfolio at the end of 2018 Q3.
- The size and liquidity of the foreign exchange reserves are regarded as sufficient for meeting Norges Bank's commitments.

Table 1 Key figures from 2018 Q3

	Fixed income investments	Equity investments	Petroleum buffer portfolio	Foreign exchange reserves
<i>In billions of NOK</i>				
Market value (opening)	301.3	184.7	16.2	502.2
Market value (closing)	320.5	172.6	9.9	503.0
Change in market value	19.1	-12.0	-6.3	0.9
Net transfers	21.6	-21.3	-6.3	-6.0
Return in NOK terms	-2.4	9.2	0.1	6.9

Table 2 Details of fixed income and equity investments for 2018 Q3

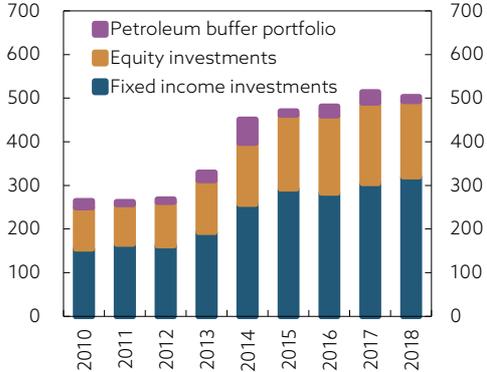
	Fixed income investments	Equity investments	Total
<i>In billions of NOK</i>			
Return in NOK terms	-2.4	9.2	6.8
Return in international currency terms	-0.8	10.1	9.3
Movements in the krone exchange rate	-1.7	-0.8	-2.5
<i>In percent</i>			
Return in NOK terms	-0.81	5.01	1.40
Return in international currency terms	-0.25	5.45	1.91
Relative return in international currency terms	0.02	0.02	-
Expected relative volatility in NOK terms (annualised)	0.13	0.09	-

Foreign exchange reserves

The market value of the foreign exchange reserves was NOK 503.0bn at the end of 2018 Q3. In all, the value increased by NOK 0.9bn during the quarter. A rising equity market generated a return of approximately NOK 10.1bn, while rising interest rates contributed negative 0.8bn. A stronger krone resulted in a NOK 2.5bn reduction. During the quarter, a net outflow reduced the foreign exchange reserves by the equivalent of NOK 6.0bn. As a consequence of rebalancing back to the strategic equity weighting, NOK 21.3bn worth of foreign exchange was transferred from the

equity portfolio to the fixed income portfolio at the end of Q3.

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



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. Therefore, unless stated otherwise, return will henceforth be measured in international currency. The petroleum buffer portfolio, which is not held for the purpose of crisis management, is excluded from the measurement of return.

Fixed income investments

The market value of the fixed income investments at the end of 2018 Q3 was NOK 320.5bn, an increase of NOK 19.1bn since the end of Q2. The rise primarily reflects the transfers from the equity portfolio to the fixed income portfolio on the last trading day of the quarter. The return in international currency terms was negative NOK 0.8bn, or approximately negative 0.3%, outperforming the benchmark by 2 basis points.

US government bond yields rose in Q3, reflecting continued solid momentum in the US economy. As a result, the Federal Reserve increased its policy rate in September, and at the same time signalled that it will continue to gradually tighten monetary policy in the period ahead. With the exception of a decline in yields in the first half of August due to increased concerns about trade conflict escalation and turbulence in emerging economies, yields rose over the quarter. Short government bond yields rose more than yields on the long end over the quarter. By the end of Q3, two-year yields were up approximately 30 basis points, while ten-year yields increased by about 20 basis points. USD-denominated investments accounted for around 50%

of the fixed income portfolio and earned a return of close to zero for the quarter, as current interest income offset the losses resulting from the rise in yields.

German and French government bond yields rose 10-15 basis points in Q3. In August, concerns regarding higher Italian budget deficits contributed to a decline in yields in core countries. Towards the end of the quarter, European government bond yields rose in response to solid incoming data, interpretations of signals from the ECB and somewhat less geopolitical turbulence. The rise in government bond yields, combined with negative current interest income, resulted in a return on EUR-denominated investments of approximately negative 0.5% in euro terms. These investments accounted for about 34% of the fixed income portfolio.

UK government bond yields rose by around 15 basis points over the quarter, reflecting solid incoming data, progress in negotiations for a Brexit deal and higher global interest rates. The Bank of England raised its policy rate in the beginning of August and communicated that it still expects a very gradual tighten-

ing of monetary policy in the coming years. While current interest income made a positive contribution, the rise in government bond yields resulted in a return on UK government bond investments of approximately negative 0.3% in GBP terms. In Q3, the Bank of Japan made a number of adjustments to its yield curve control policy. Against this

background, government bond yields with maturities of up to 10 years rose by up to 10 basis points. Investments in JPY earned a return of negative 0.2% in JPY terms in Q3, and as with sterling investments, investments in JPY accounted for about 8% of the fixed income portfolio at the end of Q3.

Table 3 Fixed income investments by currency at the end of Q3. Market value in billions of NOK

	Market value	Share	Duration	Yield
Total	320.5	100.00	3.53	1.46
EUR	109.7	34.22	3.57	-0.10
GBP	25.6	8.00	3.73	1.05
JPY	25.6	7.99	3.92	-0.07
USD	159.6	49.79	3.41	2.84

Table 4 Return on fixed income investments

	2018 Q3	YTD
<i>In international currency terms</i>		
Return (percent)	-0.25	-0.33
Return (in millions of NOK)	-791	-1 054
<i>In NOK terms</i>		
Return (percent)	-0.81	-2.18
Return (in millions of NOK)	-2 444	-6 643

Table 5 Relative return on fixed income investments

	2018 Q3	YTD
<i>In international currency terms</i>		
Relative return (percentage points)	0.02	0.00
Relative return (in millions of NOK)	63	13

Chart 2 Principal and coupon due per year at the end of Q3. In billions of NOK

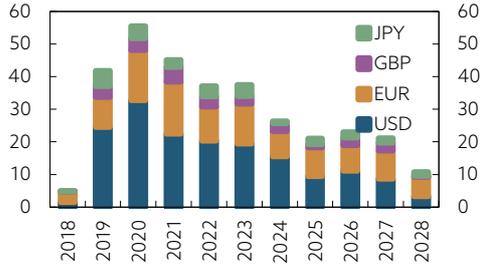


Chart 3 Return in international currency terms. Fixed income investments. Percent

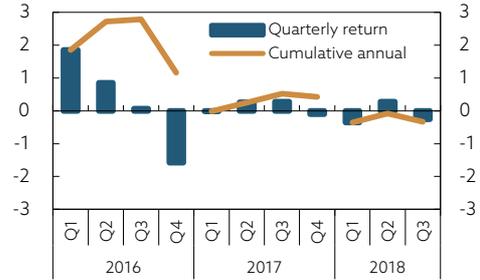
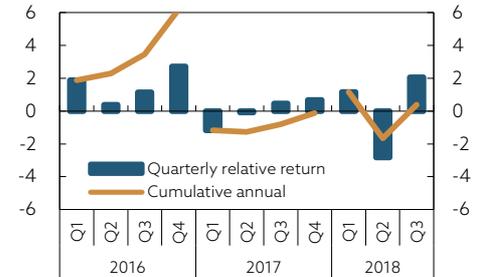


Chart 4 Relative return in international currency terms. Fixed income investments. Basis points



BENCHMARK INDEX
The benchmark index for fixed income investments is provided by Bloomberg and is a market value-weighted index of all nominal government bonds with a residual maturity of between one month and 10 years issued by France, Germany, Japan, the UK and the US. The currency weighting in the fixed income index is 50% USD, 34% EUR, 8% GBP and 8% JPY.

Equity investments

The market value of the equity investments was NOK 172.6bn at the end of 2018 Q3, a decline of NOK 12bn from Q2. The decline primarily reflects transfers from the equity portfolio to the fixed income portfolio on the last trading day of the quarter. The return in international

currency terms was NOK 10.1bn, around 5.4%, outperforming the benchmark by 2 basis points.

At the end of Q3, approximately 65% of the equity portfolio was invested in North America, 23% in Europe and 12%

in Asia. In the US, equity prices rose during Q3 and were supported by continued growth in corporate earnings. Equity price developments in the rest of the world were weaker. Uncertainty about the effect of higher trade barriers probably made a negative contribution to growth expectations outside the US. Interest rates increased somewhat in most advanced economy markets in Q3.

Table 6 Equity investments excluding cash funds by industry at the end of 2018 Q3. In billions of NOK

	Market value	Share (%)
Oil and gas	11.8	6.8
Basic materials	6.8	3.9
Industrials	21.5	12.3
Consumer goods	18.6	10.7
Health care	22.6	13.0
Consumer services	20.1	11.6
Telecommunications	4.6	2.6
Utilities	4.0	2.3
Financials	36.1	20.7
Technology	28.0	16.1

Table 8 Return on equity investments

	2018 Q3	YTD
<i>In international currency terms</i>		
Return (percent)	5.45	7.21
Return (in millions of NOK)	10 094	13 413
<i>In NOK terms</i>		
Return (percent)	5.01	5.54
Return (in millions of NOK)	9 249	10 186

Table 9 Relative return on equity investments

	2018 Q3	YTD
<i>In international currency terms</i>		
Relative return (percentage points)	0.02	-0.03
Relative return (in millions of NOK)	43	-53

BENCHMARK INDEX

The benchmark index for equity investments is a tax-adjusted version of the FTSE All-World Developed Market Index, limited to euro area countries, the US, Japan, the UK, Canada, Australia, Switzerland, Sweden and Denmark.

Petroleum buffer portfolio

At the end of 2018 Q3, the market value of the petroleum buffer portfolio was NOK 9.9bn. During the quarter, approximately NOK 42.1bn worth of foreign exchange was purchased from the

North American equities posted the highest return in Q3, 7.5%. The return on investments in Europe and Asia were 1.2% and 3.1%, respectively. The health care sector posted the highest return in Q3, 11.9%. The electricity and water supply sector posted the weakest return in the quarter, negative 0.2%.

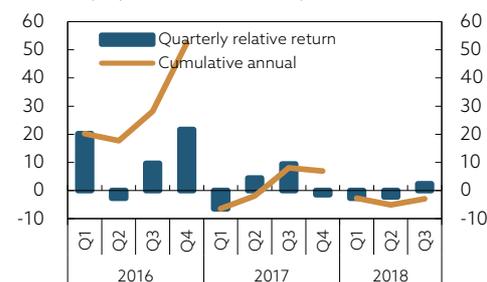
Table 7 Equity investments by currency at the end of 2018 Q3. In billions of NOK

	Market value	Share (%)
AUD	4.2	2.4
CAD	5.1	3.0
CHF	5.3	3.0
DKK	1.1	0.6
EUR	19.9	11.5
GBP	11.0	6.4
JPY	17.1	9.9
SEK	1.8	1.1
USD	107.2	62.1

Chart 5 Return in international currency terms. Equity investments. Percent



Chart 6 Relative return in international currency terms. Equity investments. Basis points



State's Direct Financial Interest (SDFI). At the same time, Norges Bank sold NOK 36.0bn worth of foreign exchange in the market. In Q3, a total of NOK 12.5bn was transferred to the GPF.

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 major 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 2018 Q3 excluding exchange rate movements against the krone was 11.1% and 1.2%, respectively. This corresponds to

an expected annual fluctuation in value, excluding exchange rate movements against the krone, of approximately NOK 19bn and NOK 4bn, respectively. While absolute volatility provides an indication of how much the foreign exchange reserves are expected to fluctuate in value, relative volatility provides an indication of how much the portfolios are expected to fluctuate in value compared with the portfolio's benchmark index. At the end of Q3, expected relative volatility was 0.09 and 0.13 percentage point for equity and fixed income investments, respectively.

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. According to credit ratings assigned by Fitch, the US and German governments are rated AAA, the UK and French governments are rated AA, and the Japanese government is rated A.

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

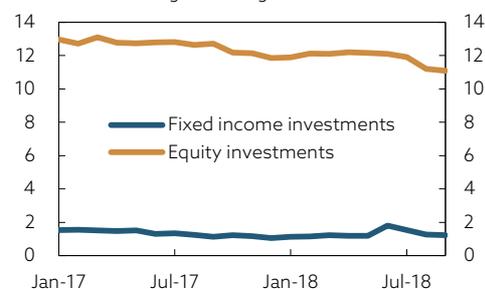
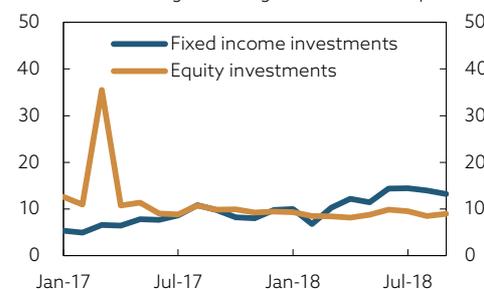


Chart 8 Relative volatility, including exchange rate movements. Foreign exchange reserves. Basis points



EXPECTED RELATIVE VOLATILITY

Under the Executive Board's principles for the foreign exchange reserves, maximum expected relative volatility is set at 0.5 percentage point for both fixed income and equity portfolios. Relative volatility of 50 basis points means that the excess return is expected to be within the interval ± 0.5 percentage point in two out of three years.

International commitments

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

See page 8 for an overview of Norges Bank's commitments to the IMF. The size and liquidity of the foreign exchange reserves are assessed to be sufficient to meet Norges Bank's international commitments.

OVERVIEW OF NORGES BANK'S COMMITMENTS TO THE IMF

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QUOTA SUBSCRIPTIONS are the IMF's primary source of funding and reflect the member country's relative size in the global economy. In 2010, the IMF approved the 14th General Review of Quotas, under which IMF quota subscriptions doubled with effect from 2016. Norway's quota subscription increased to SDR 3 755m¹. At the end of Q3, the amount drawn² totalled SDR 341m (Chart 9). No amounts were drawn on the quota subscription in Q3.

The **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. At the same time as the quota increase, Norway's resource commitments under the NAB were reduced by approximately the same amount. Norges Bank's commitments under the NAB now amount to SDR 1 967m (Chart 10). Total outstanding drawings were SDR 200m at the end of Q3. In 2018, only repayments were made under the NAB.

BILATERAL AGREEMENTS serve as the IMF's third line of defence. In 2009, Norges Bank provided the IMF with a borrowing facility under a bilateral borrowing agreement of SDR 3 000m, which was continued under the NAB. In 2012, Norges Bank provided the IMF with a borrowing facility under a bilateral borrowing agreement of SDR 6 000m, to be drawn on only in very special circumstances. This agreement expired in November 2016 and was never drawn on. On 21 April 2017, on behalf of the Ministry of Finance, Norges Bank signed a new bilateral agreement with the IMF for the same amount. The agreement is in effect until the end-2019, with the possibility of a one-year extension. At the end of 2018 Q3, no amounts had been drawn on the new borrowing agreement.

The **PRGT** (Poverty Reduction and Growth Trust), signed in 2010 by which the Ministry of Finance and the IMF, is an agreement under which Norway will furnish SDR 300m in loan resources to the IMF's programme for low income countries. Norges Bank is the agent for the loan and administers the commitments. This facility is now fully drawn, and under the agreement from 2010, only repayments will be made (Chart 11). In November 2016, a new borrowing agreement was signed under which Norway will provide the PRGT with an additional SDR 300m. At the end of 2018 Q3, no amounts had been drawn on the new borrowing agreement.

Loan resource commitments under the quota, NAB, bilateral agreements and the PRGT total SDR 12 021m, of which the IMF had drawn SDR 541m at the end of 2018 Q3. A further SDR 11 480m may thus be drawn under these arrangements (See Table 14 under Key figures for further details).

HOLDINGS OF SDRs The IMF has allocated SDRs to member countries. Member countries may change their SDR holdings by purchasing from or selling to members who have voluntarily agreed to be a counterparty in SDR transactions. In 2009, Norges Bank entered into 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, if other countries wish to sell SDRs, Norges Bank may have to increase holdings of SDRs to SDR 2 345m. Purchases of SDRs are charged to the foreign exchange reserves. The agreement also gives Norges Bank the right to sell SDRs. At the end of 2018 Q3, holdings of SDRs were SDR 1 521m (Chart 12).

Chart 9 IMF quota. In billions of SDRs



Chart 10 NAB. In billions of SDRs

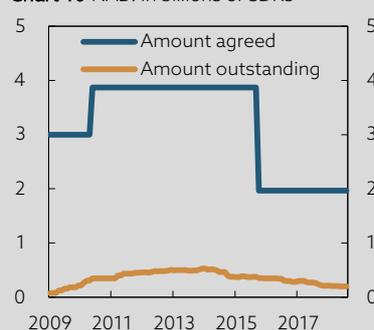


Chart 11 PRGT. In hundreds of millions of SDRs

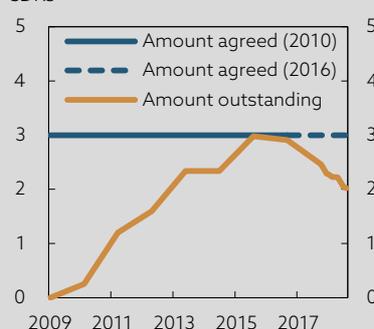


Chart 12 holdings of SDRs. In billions of SDRs



¹ Special Drawing Rights (SDR). The SDR is an instrument the IMF can use to allocate international liquidity. The value of the SDR is based on a basket of five currencies: USD, EUR, JPY, GBP and CNY. At 28 September 2018, SDR 1 = NOK 11.37.

² The amount drawn is equal to Norway's reserve position in the IMF.

Key figures

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Table 10 Market value. In billions of NOK

	2018 Q3	2018 Q1 – Q3	2017 Q3	2017 Q1 – Q3
Market value of fixed income and equity investments	493.1	-	466.4	-
Change in market value	7.1	4.1	-9.7	6.2
Net transfers	0.3	0.6	0.4	0.2
Return in NOK	6.8	3.5	-10.1	6.0
<i>Return in international currency</i>	9.3	12.4	7.8	22.3
<i>Change due to movements in krone exchange rate</i>	-2.5	-8.8	-17.9	-16.4
Market value of the petroleum buffer portfolio	9.9	-	12.9	-
Change in market value	-6.3	-15.4	-12.3	-7.8
Net transfers	-6.3	-15.5	-11.3	-6.7
<i>Foreign exchange purchases from the SDFI</i>	42.1	120.6	29.4	104.3
<i>Foreign exchange purchases in the market</i>	-36.0	-136.0	-51.0	-161.1
<i>Transfers from the GPFPG</i>	-12.5	-0.2	10.4	50.1
Return in NOK	0.1	0.1	-1.0	-1.1
Market value of the foreign exchange reserves	503.0	-	479.3	-

Table 11 Return in international currency terms. Percent

	2018 Q3	2018 Q1 – Q3	2017 Q3	2017 Q1 – Q3
Return on fixed income investments	-0.25	-0.33	0.28	0.52
Return on equity investments	5.45	7.21	4.27	12.84
Return on the foreign exchange reserves¹	1.91	2.50	1.69	4.94
Return on the benchmark index for fixed income investments	-0.27	-0.34	0.27	0.53
Return on the benchmark index for equity investments	5.43	7.23	4.17	12.76
Relative return on fixed income investments	0.02	0.00	0.00	-0.01
Relative return on equity investments	0.02	-0.03	0.09	0.08

¹Excluding the petroleum buffer portfolio

Table 12 Return in NOK terms. Percent

	2018 Q3	2018 Q1 – Q3	2017 Q3	2017 Q1 – Q3
Return on fixed income investments	-0.81	-2.18	-3.28	-2.39
Return on equity investments	5.01	5.54	-0.03	7.73
Return on the foreign exchange reserves¹	1.40	0.72	-2.13	1.29
Return on the benchmark index for fixed income investments	-0.83	-2.19	-3.29	-2.38
Return on the benchmark index for equity investments	4.98	5.57	-0.12	7.65
Relative return on fixed income investments	0.02	0.00	0.00	-0.01
Relative return on equity investments	0.02	-0.03	0.09	0.08

¹Excluding the petroleum buffer portfolio

Table 13 Key figures at the end of 2018 Q3. Annualised data in international currency terms. Percent

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	Past year	Past 3 years	Past 5 years	Past 10 years
Return on the foreign exchange reserves	4.42	5.36	5.22	6.30
<i>Fixed income investments</i>				
Return on fixed income investments	-0.44	0.25	1.46	3.50
Return on benchmark index	-0.45	0.24	1.48	2.87
Relative return	0.01	0.02	-0.02	0.63
Realised absolute volatility ¹	1.27	1.53	1.82	3.08
Realised relative volatility ¹	0.06	0.05	0.06	1.45
Information rate (IR) ²	0.17	0.33	-0.34	0.43
<i>Equity investments</i>				
Return on equity investments	12.93	14.58	11.85	10.72
Return on benchmark index	12.97	14.37	11.65	10.44
Relative return	-0.05	0.21	0.20	0.28
Realised absolute volatility ¹	7.21	8.50	8.93	13.48
Realised relative volatility ¹	0.08	0.15	0.15	0.30
Information rate (IR) ²	-0.58	1.37	1.34	0.95

¹ Realised volatility is a measure of the fluctuation in monthly return values, expressed here by the annualised empirical standard deviation. Absolute/relative volatility expresses risk related to absolute/relative return.

² IR is a risk-adjusted return measure. IR is the ratio between excess return and the portfolio's realised relative market risk (measured by relative volatility).

Table 14 Claims on and liabilities to the International Monetary Fund (IMF) at the end of 2018 Q3. In millions of NOK

	Loan resource commitments ²	Recognised in the balance sheet			Total amount
		Drawn on commitments	Subscription ³	SDRs	
<i>Financial assets</i>					
IMF subscription (quota) ¹		-	42 768	-	42 768
Holdings of SDRs		-	-	17 329	17 329
Loans to the IMF - NAB	22 366	2 282	-	-	2 282
Loans to the IMF - Bilateral agreement	68 235	-	-	-	-
Loans to the IMF - PRGT	6 824	2 306	-	-	2 306
Claims on the IMF		4 588	42 768	17 329	64 685
<i>Financial liabilities</i>					
Krone liability to the IMF		-	38 887	-	38 887
Equivalent value of SDR allocations		-	-	17 805	17 805
Liabilities to the IMF		-	38 887	17 805	56 691
Net positions with the IMF		4 588	3 881	-476	7 993

¹ The IMF allocates quotas to member countries which primarily reflect member countries' relative size in the world economy. The quota provides the basis for determining the member country's voting power in the IMF, the member's financial contribution to the IMF, the amount of financing the member can access in the event of balance of payments problems and the amount of SDRs the member is allocated.

² Commitments giving the IMF a borrowing facility with Norges Bank up to an agreed amount. Only the portion drawn is recognised in the balance sheet. Norges Bank's commitments to the IMF are in SDRs; amounts have been translated into NOK.

³ The net subscription is referred to as the reserve tranche position (RTP) comprising Norway's IMF quota less Norway's krone liability to the IMF, ie the net amount at the bottom of the column.